

AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER

Vol. 40.

CONTENTS FOR JANUARY, 1926

No. 4.

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Announcing the

American Builder Year Book of Building Designs

HOW would you like to have a great big book full of reference matter, modern building information, and five hundred popular building designs?

Could you use a big collection of plans—not only of homes but also of garages, modern store buildings, schools, churches, theatres, apartment buildings, offices and farm buildings?

That is what we are getting ready for you—our 1926 AMERICAN BUILDER Year Book of Building Designs. It will be ready for distribution March 1st in connection with the March Annual Number of the AMERICAN BUILDER. It will be a book of about thirteen hundred pages, the same size as the AMERICAN BUILDER but much thicker and bound in hard, durable covers.

Ninety-six pages will be in full colors!

We are celebrating our twenty-first birthday in March with this biggest and best issue which the AMERICAN BUILDER or any other building publication has ever put out, and we are supplementing this with a fifty thousand edition of the 1926 Year Book in hard covers.

You recall, of course, our big, notable issue of June, 1924 and 1925. This year, 1926, to help celebrate our birthday, this big issue has been moved ahead to March, right at the beginning of the active building season.

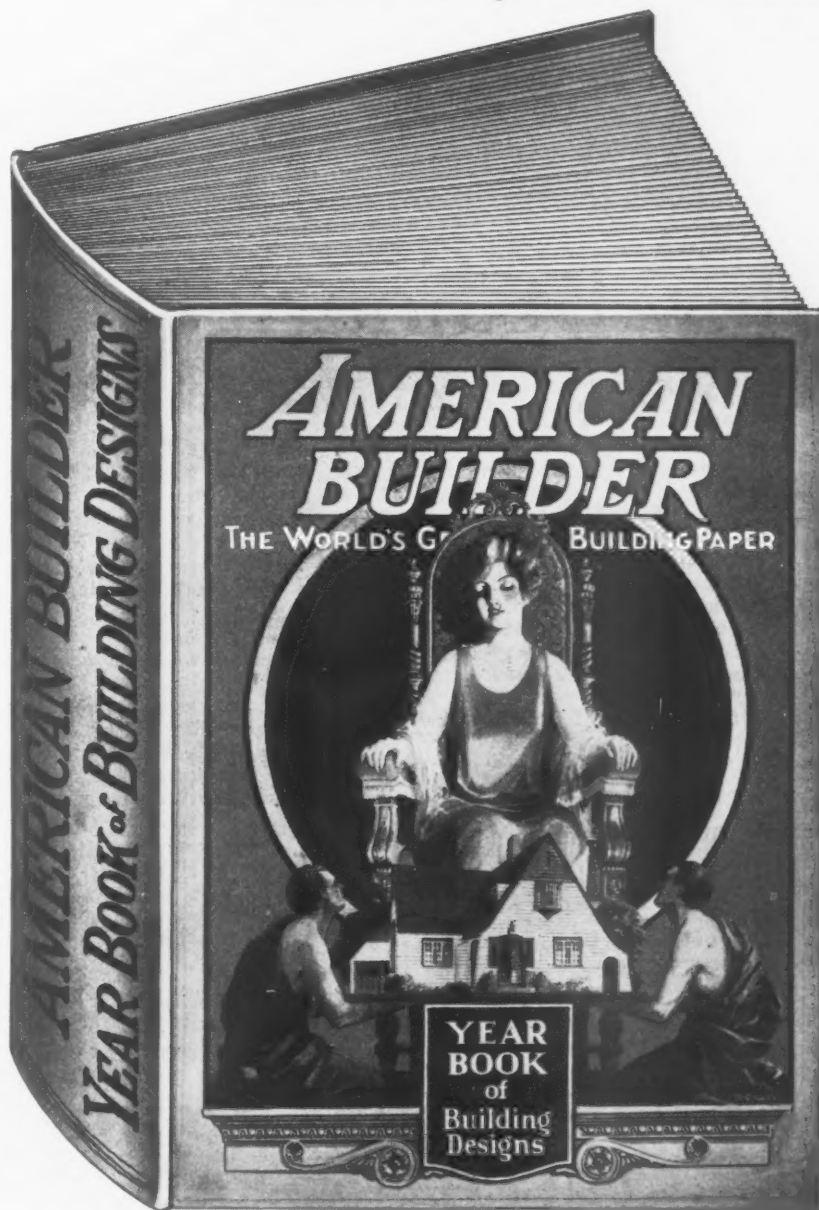
Every dealer, every contractor, every real estate builder, every architect ought to have a copy of the AMERICAN BUILDER Year Book for reference and use all through the year. We are offering these books to our readers and their friends at a very nominal price. Some firms are ordering several copies so that their salesmen will be equipped with this big book. Some dealers are ordering for their contractor friends.

Our manufacturing order is for fifty thousand copies and they are fast being spoken for.

How many copies can YOU use?

EDITOR, AMERICAN BUILDER

*Gather 'Round the Family Table
and Learn of Our New-
est Treat for Our Folks*



A Book of 1,300 Pages, 8 $\frac{3}{8}$ by 11 $\frac{3}{8}$ Inches, Bound in Hard Covers; Ready for Distribution March 1, 1926; to Contain 500 Designs of Homes and All Other Buildings, Also Specification and Buyers' Guide and Complete Classified Index.



Res. of James Gilmore, Esq., Reg. Arch. Cincinnati, Ohio, Bishopric Ivory Cream Stucco over Bishopric Base on all exteriors.

Stucco walls of greater strength

Ordinary Stucco



Bishopric Stucco



The enormous tensile strength of Bishopric Stucco is illustrated here. This is just one of the Bishopric guarantees of permanence on the wall.

How Bishopric provides lasting beauty and protection

Rare beauty of shade and texture, with permanent protection from the elements are exclusive Bishopric qualities that are being appreciated more and more by those interested in home-building. BISHOPRIC is a super-stucco with greatly increased strength, thus providing durability and protection so vital to every building, whether it be large or small. In Bishopric only can be obtained the wide variety of beautiful shades and textures now demanded by those who appreciate the best. With Bishopric, beauty and protection go hand in hand.

Tensile strength tests show BISHOPRIC far superior to other stuccoes.

BISHOPRIC is fireproof, magnesite rock used is the same as that used to line furnaces and smelters — Tremendous heat has no effect on it.

BISHOPRIC is thoroughly waterproofed by a secret process shutting out moisture, cold, heat, wind and vermin.

BISHOPRIC Insulation Qualities are practically perfect, retarding heat and cold, eliminating objectional noises.

BISHOPRIC requires no painting or renewing — A wall built to stand for generations.

In mansion or bungalow, Bishopric Stucco has a place, whether laid over stately lines or designed after those quaint cottage effects, now so popular.

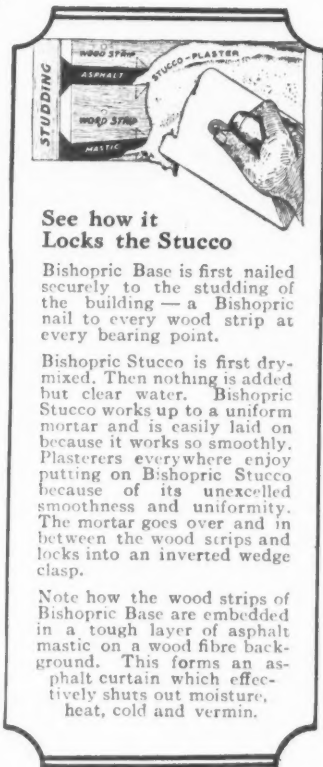
Bishopric Stucco endures in every clime, retaining its strength and its original color in temperatures of either extreme. Economical in original cost, negligible in upkeep, warm in winter and cool in summer, BISHOPRIC STUCCO over BISHOPRIC BASE not only wins friends but keeps them. And no wonder, for it yields itself to any form and endures from generation unto generation.

An interesting booklet "Bishopric For All Time and Clime," illustrated with photographs of beautiful houses built with Bishopric Stucco, plaster and sheathing units will be mailed you Free.

The BISHOPRIC MANUFACTURING CO.
701 LESTER AVE. CINCINNATI, OHIO
NEW YORK CITY CINCINNATI OTTAWA CANADA
The BISHOPRIC MFG CO. OF CALIFORNIA
LOS ANGELES

BISHOPRIC STUCCO *over* BISHOPRIC BASE

"A Complete Wall Unit for all Time and Clime"



See how it Locks the Stucco

Bishopric Base is first nailed securely to the studding of the building — a Bishopric nail to every wood strip at every bearing point.

Bishopric Stucco is first dry-mixed. Then nothing is added but clear water. Bishopric Stucco works up to a uniform mortar and is easily laid on because it works so smoothly. Plasterers everywhere enjoy putting on Bishopric Stucco because of its unexcelled smoothness and uniformity. The mortar goes over and in between the wood strips and locks into an inverted wedge clasp.

Note how the wood strips of Bishopric Base are embedded in a tough layer of asphalt mastic on a wood fibre background. This forms an asphalt curtain which effectively shuts out moisture, heat, cold and vermin.



Formerly AMERICAN CARPENTER AND BUILDER
1827 Prairie Ave., Chicago—250 Park Ave., New York City

Winter Construction Costs

G. RICHARD DAVIS, contractor, whose company is doing a great deal of winter construction, recently stated, at a meeting of the New York Building Congress, that his experience had been that there is no increase in cost connected with winter building as there are practical ways of doing this work which will facilitate the final result of the construction. "Last winter, on a steel and reinforced cinder concrete type of construction," he said, "we proceeded without loss of a single working day. There were days when some trades could not work, but our chief trouble lay in the transportation through the streets when they were blocked with snow and ice. One of our difficulties was in getting the men to work, they could not believe that there was work on a morning when it was so cold. But a number of the trades are so pleased with the prospect of work in the winter time that they were willing to take the work at a great deal less than during the spring or summer."



A Score Card for Homes

A STANDARD method of scoring the good points of a subdivision, as judges score the fine points of a thoroughbred, will be worked out by the National Association of Real Estate Boards through its Home Builders' and Subdividers' Division. The executive committee of the division has just authorized the preparation of a score card or standard test which will give a satisfactory basis for grading subdivision developments in comparison with the division's ideal of city building. A similar score card for analyzing and grading office and apartment buildings has already been worked out by the Property Management Division of the Association.



More Records Broken

RECORD building volume is continuing into the winter months, according to the November records of the F. W. Dodge Corporation. Building and engineering contracts awarded last month in 36 states, which include about seven-eighths of the total construction volume of the country, amounted to \$464,683,100. This is the highest recorded figure for any November and is 23 per cent greater than the amount recorded in November of last year. There was a seasonal decrease of nearly 11 per cent from October. The strongest influence now holding the building volume up to record proportions is the big increase in New York City activity, largely speculative in character.

The November record included the following important items: \$240,279,800, or 52 per cent of all construction, for residential buildings; \$61,336,000, or 13 per cent, for commercial buildings; \$57,035,300, or 12 per cent, for public works and utilities; \$53,308,600, or 11 per cent, for industrial buildings; and \$22,048,100, or 5 per cent, for educational buildings.

New construction started in these 36 states during the past 11 months has reached the record breaking total of \$5,310,950,000, compared with \$4,151,321,100 in the first

11 months of last year and with \$4,479,307,000 in the entire 12 months of last year. The percentage increase over the corresponding period of last year is 28 per cent; over all of last year, nearly 19 per cent. Every district has in 11 months exceeded its 1924 total, some districts by very large percentages.

Contemplated new work reported for these 36 states in November amounted to \$698,272,700, which is 17 per cent less than the amount reported in October and 35 per cent greater than the amount reported in November of last year.



Forest Tax Legislation

THE California Legislature has submitted a constitutional amendment exempting growing trees from taxation. Minnesota is again to vote on a yield tax amendment. Wisconsin has adopted a constitutional amendment broadening legislative powers.

But the most radical measure in the direction of the encouraging of reforestation by the readjustment of taxation, is that adopted by Michigan. This law is considered by many foresters as solving the problem of taxing forests without penalizing reforestation and at the same time providing forest communities with necessary current revenues.



Fuel Costs and Insulation

THE United States Bureau of Industrial Research, in a statement recently issued, said: "The fuel consumed in 15,000,000 homes is fully 30 per cent and probably 50 per cent more than would be necessary if standards were maintained in materials. Owners of buildings have not been taught that heat is transmitted through lumber, brick and stone just as it is through glass, but less rapidly. Many homes in America have a fuel cost equal, in a period of 25 years, to the first cost." The answer to this problem is insulation which, in most cases, will be more than paid for within three years by the saving in fuel costs.

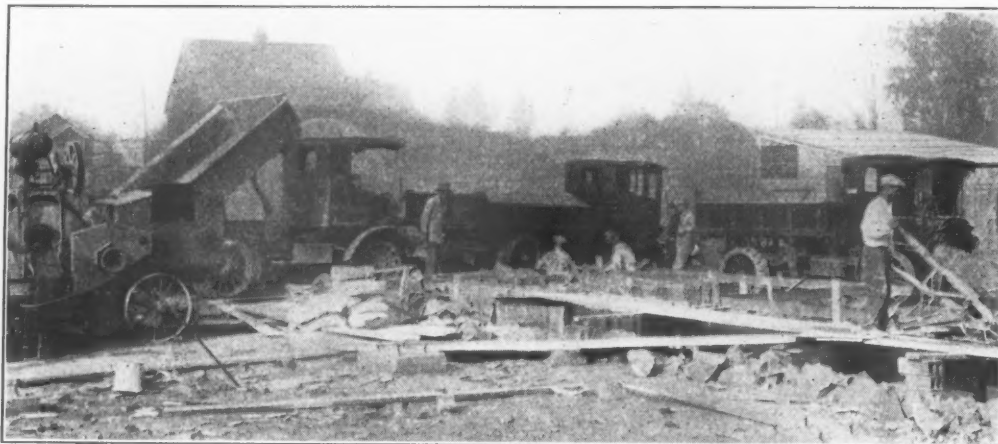


American Lumber Standards

REFERRING to the American Lumber Standards, in an address before the American Construction Council, Dudley F. Holtman, construction engineer for the National Lumber Manufacturers' Association, said:

"As evidence of its interest in better building, the industry (lumber) of its own accord and with the co-operation of all interests, has succeeded during the past four years in developing a set of national standards for every form of softwood lumber. American Lumber Standards in themselves are a most potent influence for better building. More than any single instrument ever placed in the hands of the lumber using public do they make possible a more intelligent, a more logical and, therefore, a more nearly perfect utilization of lumber in building construction. Copies of these standards should be in the hands of all persons interested in building and may be procured by addressing the Central Committee on Lumber Standards at Washington, D. C."

Autocar trucks do the work at less cost



4-cylinder Autocars owned by Walter S. Johnson of Buffalo

Any experienced truck user, who has operated different makes, will tell you that 4-cylinder Autocars have set a new low standard of operating costs.

Removable bushings, more space available for the pay load, low gas and oil consumption and assurance of more continuous operation by the nation-wide system of Direct Factory

Branches are among the most important points which tend to keep Autocar hauling costs low.

In addition, Autocars, and Autocars *only*, have the further advantages of engine-under-the-seat design, short wheelbase handiness, more even weight distribution, compact sturdiness and bigger loads at less cost.

The Autocar Company, Ardmore, Pa.

ESTABLISHED 1897

Direct Factory "Autocar Sales and Service" Branches or Affiliated Representatives in

*Albany	*Buffalo	*Detroit	*Memphis	*Paterson	*San Francisco	Tampa
*Allentown	*Camden	*Erie	*Miami	*Philadelphia	*San Jose	Trenton
*Altoona	*Canton, O.	*Fall River	*Newark	*Pittsburgh	*Schenectady	*Washington
*Atlanta	*Charlotte	*Fresno	*New Bedford	*Providence	Scranton	West Palm Beach
*Atlantic City	*Chester	*Indianapolis	*New Haven	*Reading	Shamokin	*Wheeling
*Baltimore	*Chicago	*Jersey City	*New York	*Richmond	*Springfield	Wilkes-Barre
*Binghamton	*Cleveland	*Lancaster	*Norfolk	*Rochester	*St. Louis	Williamsport
*Boston	*Columbus	*Lawrence	*Oakland	*Sacramento	*Stockton	*Wilmington
*Bronx	*Dallas	*Los Angeles	*Orlando	*San Diego	*Syracuse	*Worcester
*Brooklyn	Denver					York

* Indicates Direct Factory Branch

Autocar

gas and electric trucks

EITHER OR BOTH - AS YOUR WORK REQUIRES

Applying Industrial Methods to House Building

MANY of the efficiency methods of every well managed factory can be applied to the building industry, particularly to the business of producing houses, in the opinion of G. A. Kelly, president of the G. A. Kelly Company, builders of four hundred homes in Flint, Mich., within the past three years.

"No sensible man," says Mr. Kelly, "would answer an automobile salesman by saying: 'No, your price is too high. I guess I'll hire a mechanic and build a car of my own.'"

"But people have been saying that to home builders in recent years, without being questioned as to their sanity. And why? Simply because home builders, in my opinion, have not regarded their business as an industry, subject to the same principles that make for success in any line of manufacturing.

"At one time we considered the advisability of going into the business of erecting office buildings and other large structures, but we weighed the matter carefully and finally concluded that the business



G. A. Kelly, President of the G. A. Kelly Lumber Company, of Flint, Mich., Has Applied Industrial Methods to the Building of Homes.

of building homes offered greater opportunities, largely because it is still almost a virgin field in which to develop an industrial organization."

This gives one a clear conception of the Kelly idea. G. A. Kelly and his associates are located near the very center of the automobile industry. Every day they have had before their eyes one of the best examples of what industrial efficiency can accomplish, and the influence of that environment has possibly had much to do with the development of their organization.

Trade Marked Houses

The use of a trade mark, or "pride mark," as the Kelly company calls it, is one little thing that illustrates how the industrial idea has influenced the methods of the company. Each house built by this concern has a trade mark plate. It is countersunk in the edge of the front door. On it appears the phrase, "Built by Kelly Construction Company," with the word Kelly standing boldly out from a background of red. In one corner of this plate appears a blank



The G. A. Kelly Lumber Company Specializes on the Building of Homes Just as the Big Automobile Manufacturers Specialize on the Building of Cars, with the Result That Better Work and Lower Costs Accompany a Very Considerable Saving of Time on Each Job.

where the year the job was finished is stamped. In the other corner one will find another blank where the serial number is stamped. This number is recorded with the building department of the city of Flint, for the benefit of future buyers.

Erects Experimental House

The erection of an experimental house each year is another idea borrowed, so to speak, from the methods of large manufacturers. Every season the automobile manufacturer builds a model car in which he can put new ideas to the practical test. The experimental departments of other kinds of manufacturers do much the same thing. So the Kelly company believes that the building of such a house has a place in the year's work.

Last year the Kelly experimental house was visited by 10,000 people during a single week, and all these visitors saw many new ideas in home construction. They saw the standard, nationally known products used in the building labeled with placards. Representatives of several manufacturers were on hand to explain the advantages of some new things in the way of material and construction that appeared in this house, and naturally the publicity value of this enterprise alone made it worth while.

This year Mr. Kelly is living in the house himself to learn by the best test possible just how practical are all the new features that have gone into its construction. New items of equipment and new ideas that are practical and will not add materially to the cost of the homes will appear in all specifications next year.

There are many features worthy of note about the production work, which is under the direct supervision of G. A. Kelly himself and Superintendent Gabe Lund.

Owens Cinder Block Plant

A cinder block factory known as the Flint Cinder Block Company was organized and is owned by the Kelly company. This concern manufactures blocks of the same size as cement blocks which are used in all basement walls and many first floor walls. They are of the same size as concrete blocks, but cinders are used in the place of gravel. This makes the product comparatively light and porous and gives it dead air space to protect against heat, cold and dampness. Plaster can be put directly on these blocks without lath and nails can be driven into them because of the porous quality.

Good buying means as much to a builder as it does to a merchant or a manufacturer, Mr. Kelly believes, and so the purchasing department goes out into the market with a view of getting lowest price wherever possible.

This is accomplished in many cases by studying conditions in the manufacturer's business. For example, the purchasing agent goes to a brick manufacturer, and after investigation finds that his business is seasonal—that his overhead which is built up for peak demand and not utilized during slack



Several Duplex and Four-Family Homes Are Built Each Year by the G. A. Kelly Company at Flint, Mich., and Every House When Finished Is the Product of Experts Throughout.

periods of the year increases the costs. Then some such an approach as this is made:

"How much would it be worth to you, Mr. Brick Man, to get business for these slack periods, which would keep your organization together and cut your overhead so that your profit on regular business would be larger? We will place an order for the brick we will need next year now and you can make delivery any time between now and then. That will give you business for the slack period. Furthermore, how much do you have to charge off in bad accounts? We will pay cash now and so we expect that reduction.

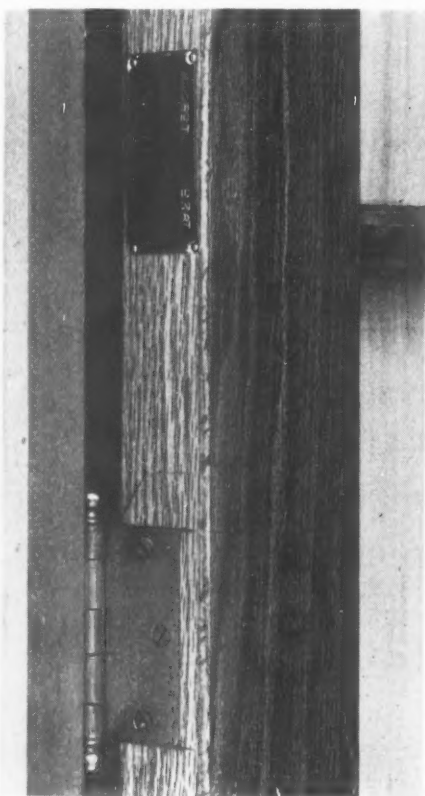
"Naturally the Kelly company is thus able to buy at very attractive prices, and the manufacturer is thankful because of the assistance he has received from the company in solving one of his most difficult problems. Whenever we have a surplus as a result of this method of buying, we are able to offer it at retail and realize a substantial profit," Mr. Kelly explained.

Securing Co-operation of Men

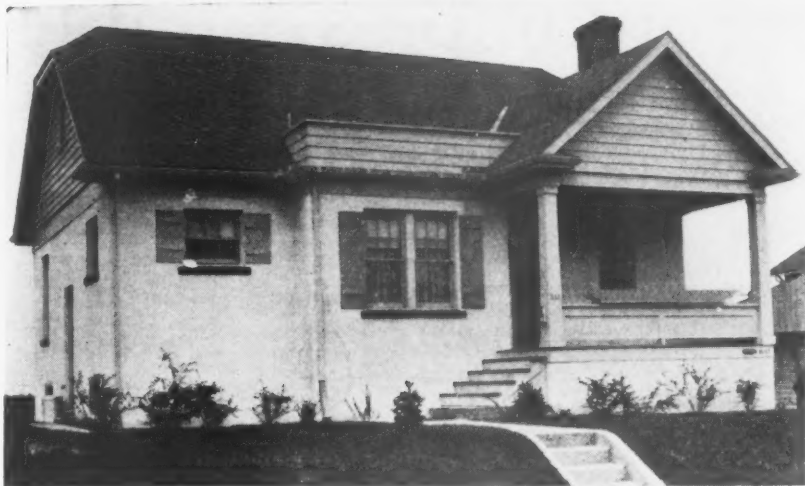
"Speed without slighting quality is our aim," says Mr. Kelly. "Freight movements are carefully watched so that workers will not idle while awaiting material. Then, too, we often put two or more crews to work on the same house at the same time. For example, lathers and plasterers will often be at work in the same building, and plumbers will be making installations while carpenters are finishing up their work. Our men are anxious to see every house rushed along toward completion as rapidly as possible."

"How can you induce your men to do this?" Mr. Kelly was asked.

"Oh, they're reasonable fellows. Just deal with them frankly. We always explain that it is our aim to sell the house they are working on for \$6,000, or \$7,500, and they realize that that is a reasonable price. Then we explain to them that we cannot do that if the job drags several weeks longer than necessary, if we have to tie up our money and pay all the carrying charges for any length of time. In other words, we educate them to the value of rapid turn-over, make them feel that their



The Kelly Company's "Trade Marked Houses" Are All Marked by a Trade Mark Plate Set Into the Edge of the Front Door.



Each Year the Kelly Company Builds an Experimental House to Make a Practical Test of New Materials, Products and Methods.

interests and our interests are identical, and then we can get their co-operation."

Winter months and slack business periods are times of greatest activity in the Kelly company. Recently the Buick Company was forced to lay off several thousand men, and community spirit ebbed a little in Flint. That was a signal for the Kelly company immediately to enlarge its building program.

"We reasoned that that was the time to secure picked men at reasonable wages," Mr. Kelly explained, "and a chance to get some new valuable men into our organization. Furthermore, we felt confident that the factories would soon be back in full operation, and the buying power of the people of Flint would be normal by the time we were ready to put these houses onto the market. Sure enough, events proved the value of this idea."

An Efficient Sales Department

Important in every industrial organization is the sales department. It is probably no more important than the production department, to be sure, for the efficiency of one is necessary for the success of the other. "The two must be well co-ordinated," says Gerald F. Healy, vice-president of the company and sales manager, "and we believe that we have succeeded in securing this necessary co-operation and maintained the proper division of work."

Every house plan is passed upon by the sales department before construction starts. Thus the homes produced are suited to the tastes and demands of buyers.

In the actual sales method, Mr. Healy has adopted one idea that is somewhat original and decidedly effective. Each salesman is equipped with a portfolio. It is a simple thing, bound in leather, loose leaf covers. Inside is to be found a list of nationally known products that go into every Kelly home. Then following this list appears a series of full page ads taken from national magazines showing the beauty, utility, and many advantages of the nationally advertised materials that make for quality in a Kelly house.

"We believe in selling by the eye," says Mr. Healy in explanation. "Prospects are inclined to discount what a salesman tells, but they are ready to believe what they see in black and white. The illustrations used in these advertisements tell the story quicker than a long line of talk from a salesman. Most people merely look through that portfolio and then become convinced that there is real quality in the houses we offer. There is another good reason for using this portfolio. After careful study and investigation national advertisers have learned just how to present the best sales points in favor of the materials they sell, and we feel that we can profit by making use of

the same points in selling finished homes."

Every house is cleaned up ready for occupancy before it is shown to a prospect. "We make it attractive with little things like flower boxes, shrubbery planted around the porch, and little artistic touches in lattice work around the front that add but little to costs but much to salability."

The importance of good school environment for the children, the security of all real estate in a growing city like Flint, and many other such sales arguments are fully stressed.

"We make our sales talk to the man, but we say things that we know will influence the woman," Mr. Healy explained. "For we realize that the women are the real buyers of homes. If we show a house with litter scattered around and building paper spread out upon the floors, we fear that we will be making a poor impression on the women, and so we are very careful in such matters."

Closing the Sale

Buying a house is a big transaction in the lives of most people, and for this reason some sales pressure must be exerted after all parties are really sold on the value and desirability of the home. People naturally hesitate because of the large size of the consideration. They are inclined to say, "Well, I'll think it over, and let you hear from me soon."

"To overcome this we get right down to a heart to heart talk with the head of the household," Mr. Healy tells. "We call the man aside and talk to him about like this:

"Now, Mr. Smith, why wait? You are convinced of the value of the house, the advantages of its location, the future security of your investment. You have also noticed how it appeals to your wife.

"You know what it means to her and your children, so why wait? You have your wife and children now, but you won't have them always. Now, while you have them and still have an opportunity to bring so much happiness into their lives, make your decision and go through with this. Of course, you may have to pinch financially for a time, but isn't it worth while? We know that you can handle this, or we wouldn't try to sell it. It would be poor business on our part. After all, you realize that a man's wants are comparatively simple. You must get your real satisfaction out of life by making your family happy, and now before the years and opportunity to bring greater happiness and a more wholesome way of living to the family are passed, you really should buy this home."

"We find this appeal to their heartstrings effective. It brings about a decision, a decision which we feel our customers never have occasion to regret."



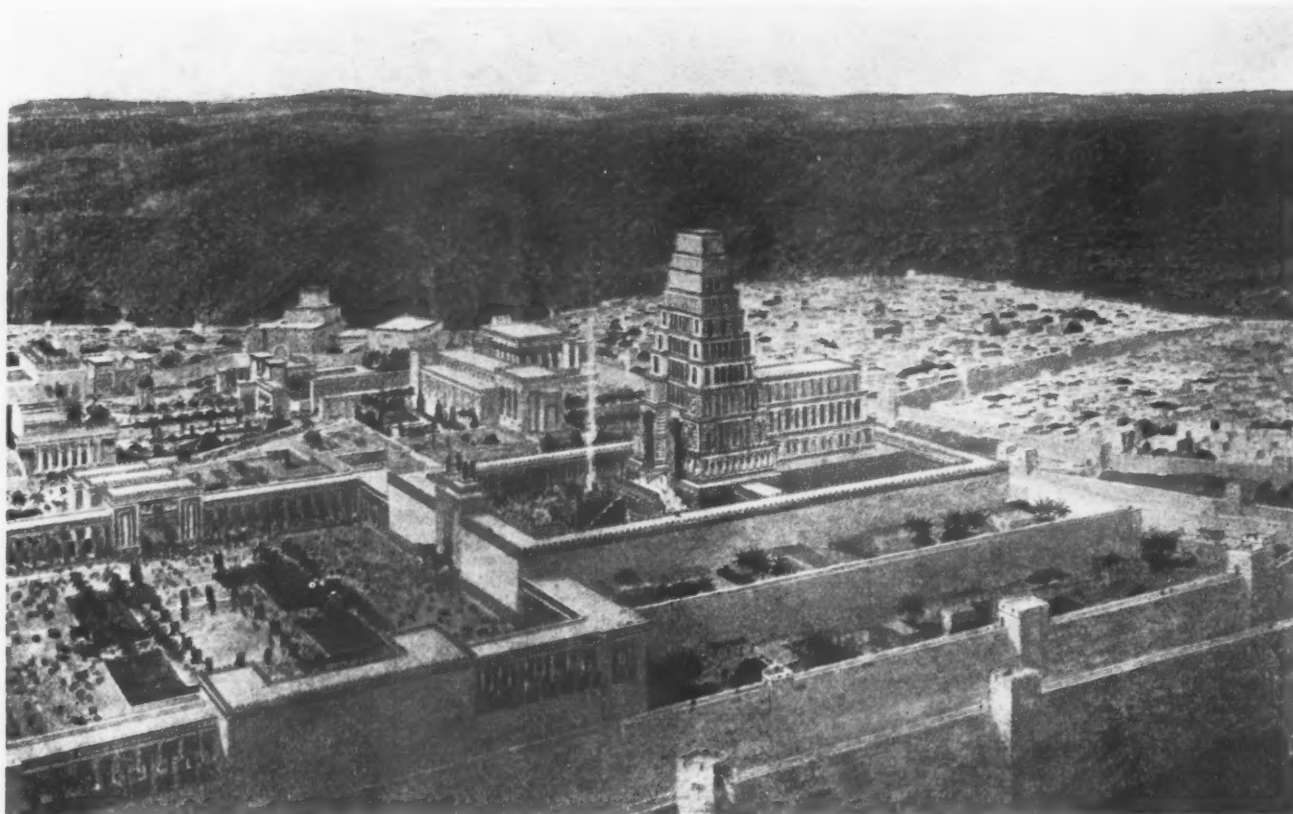
Propose Certified House Plan

A PLAN of certification for residence construction, the purpose of which would be to protect the home buyer from "jerry" building, and give him an assurance of the staying qualities of the house he is purchasing, is under consideration by the Louisville, Ky., Real Estate Board. The board has appointed a committee of three to investigate the feasibility of a plan through which dwellings may be graded as to their construction quality. The grading would also determine the structure loan value.

Under the proposed plan the board would employ expert real estate men and expert builders to examine the specifications of every house brought before it for grading. The house would be graded A, B, C or D, according to the way its construction met recognized standards.

Reproduce King Solomon's Temple on Sesquicentennial Grounds

By THEODORE MAISCH



King Solomon's Temple and Citadel as It Will Appear in the Reproduction Which Is Being Built as a Part of the Sesquicentennial Exposition, in Philadelphia, Celebrating the 150th Anniversary of the Declaration of Independence of the United States.

THE Sesquicentennial International Exposition, the one hundred fiftieth anniversary celebration of the Declaration of Independence of the United States of America, will be held in Philadelphia, Pa., during the six months' period from June 1 to December 1, 1926. Plans and construction are already far advanced and it is expected that all building, under the supervision of John Molitor, city architect of Philadelphia and architect for the exposition, will be completed by the opening date.

Exposition grounds have been selected in a beautiful natural location containing 670 acres of practically level ground within only a short distance of the city hall. On the grounds many beautiful and interesting buildings are being erected, co-operation being extended by the various states, many organizations, groups and foreign countries. Of particular note and interest, among these, will be a historically accurate reproduction of King Solomon's Temple and Citadel, including within the enclosure the Tower of David, the House of the Forest of Lebanon, the King's Palace, the Queen's Palace and other structures.

Behind this reproduction, which is the first ever undertaken, in spite of the fact that most complete specifications and descriptions are contained in the Bible, there is the inspiration of one man's life dream. John Wesley Kelchner as a mere boy visioned such a reproduction and through the succeeding years has kept it as an active ambition to which he has devoted years of study. The realization of Mr. Kelchner's dream has been made possible through the exposition management and the co-operation of J. Weily

Corbett of the firm of Helmle & Corbett, New York architects, who are the architects for the building. About \$2,500,000 will be spent for the reproduction by the Associates of the Temple and Citadel, Inc.

Though a temporary structure, the building will be a faithful reproduction of the temple and citadel which were built by King Solomon and took seven years for the building. The great tower, or zikkurat, in white and gold and squarely terraced, will rise 240 feet against the sky. The interior will be an equally faithful reproduction including all furnishings prescribed by tradition and the building will even have, as an integral part of it, the means of its own destruction.

A system of pipes will extend through the walls up to the topmost terrace of the great tower. Some day, when the building is properly emptied of visitors, volumes of gas will be forced through these pipes and the temple will be wholly enveloped in flames and smoke. This destruction of the temple will be one of the spectacles of the exposition. But when the clouds of smoke and flame have rolled away the building will remain wholly intact and will remain so even after the close of the exposition.

According to Mr. Kelchner, the temple as a unit consisted of a series of terraces around Mount Moriah, the highest point of which was crowned by the Great Porch, the Holy and Most Holy Places. The inner court of the temple must have been on the second terrace, in the middle of the western half of the great court. It was about 400 by 200 feet in size, surrounded by a cloistered colonnade



The Administration Building at the Sesqui-centennial Exposition Will Fittingly Follow the American Colonial Style of Architecture.

The two-story building will house the director general of the exposition and the entire administrative staff.

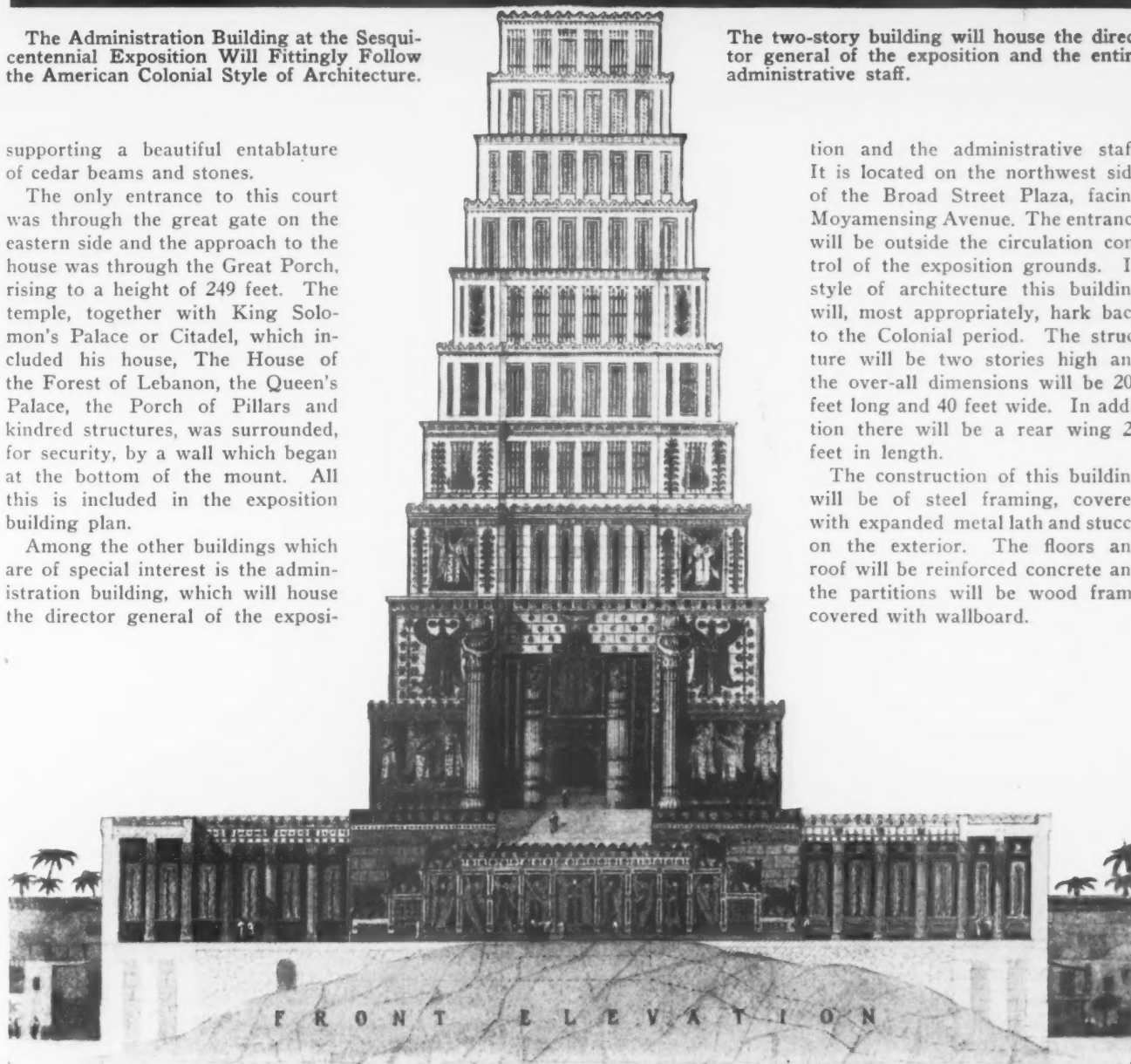
supporting a beautiful entablature of cedar beams and stones.

The only entrance to this court was through the great gate on the eastern side and the approach to the house was through the Great Porch, rising to a height of 249 feet. The temple, together with King Solomon's Palace or Citadel, which included his house, The House of the Forest of Lebanon, the Queen's Palace, the Porch of Pillars and kindred structures, was surrounded, for security, by a wall which began at the bottom of the mount. All this is included in the exposition building plan.

Among the other buildings which are of special interest is the administration building, which will house the director general of the exposi-

tion and the administrative staff. It is located on the northwest side of the Broad Street Plaza, facing Moyamensing Avenue. The entrance will be outside the circulation control of the exposition grounds. In style of architecture this building will, most appropriately, hark back to the Colonial period. The structure will be two stories high and the over-all dimensions will be 200 feet long and 40 feet wide. In addition there will be a rear wing 26 feet in length.

The construction of this building will be of steel framing, covered with expanded metal lath and stucco on the exterior. The floors and roof will be reinforced concrete and the partitions will be wood frame covered with wallboard.



This Accurate Reproduction of King Solomon's Temple Was Made Possible Through the Study of John Wesley Kelchner and the Co-operation of the Architect, J. Weily Corbett, of the Firm of Helmle & Corbett, Architects, of New York City.

Perspective Sketches That Sell Houses to Home Builders

By A. WOODROOFE, Architect

Associated with the Monroe Street Lumber Co., Spokane, Wash.



The Cotswold Cottage as the Architect's Sketch Indicated It Would Appear. Compare this with the photograph of the completed house which is shown below.

A Disappearing Stair, Indicated at "A," Makes the Space Above Accessible Without Taking Up Any Floor Space in This Compact Design.

WHEN the prospective home builder consults the Monroe Street Lumber Company, of Spokane, Wash., in regard to the planning and building of his new home, he receives a service which we have found very effective in winning the confidence and patronage of the people of our locality. This service includes two features which seem worthy of special note as being something just a little more than the ordinary.

The man who is planning to build usually has a number of ideas, more or less completely formulated, of what he wants his house to be, but he has not progressed to the point of having a definite plan in mind nor a picture of how such a house would look when worked out in the actual wood, stone, concrete, brick and other materials. It is up to our architectural department to take his ideas and form them into a complete and workable plan.

I have found, in discussing plans with these prospective builders, that it is difficult or impossible for the layman, who is not trained to it, to visualize from descriptions, floor plan sketches or even from working drawings, the finished home as it will appear. Because of this I have adopted the plan of making quick perspective sketches of the house as it will look. These may be in black and white or in colors, but in either case we have had good success in giving an accurate idea of the future appearance of the house.

It is first necessary, of course, to discuss fully the prospect's ideas, so as to know what he has in mind as to



The Cotswold Cottage as It Appeared When Completed Was Very Close to the Perspective Sketch Above. This accurate method of showing how the house will appear is very effective to clients.

number and size of rooms and their arrangement, the style of house, the material, whether frame, brick, stucco, tile or block, and limitations as to cost. I then make a simple sketch of the floor plan working in his ideas as completely as possible and then a perspective sketch. In this way I find that I can help him to visualize the completed house in the most satisfactory manner.

Two examples of this method are illustrated on these pages, showing both the sketches and photographs of the completed houses. One of these was done in black and white, while the other perspective was in colors, though these, of course, do not appear in the reproduction. The Cotswold shingled cottage was inspired by the charming

cottages of the Cotswold district of England.

This house is practically on one floor, although under the eaves there is space for a maid's room and one large chamber, to be finished at a later date. The means for reaching this space has been provided without wasting the space which would be required for the usual stairway. A disappearing stair has been installed in the hall. It is entirely out of the way and occupies no space but can be quickly and easily lowered to give access to the present attic space as it will give access to the second story rooms when they are finally finished.

The exterior walls are of white shingles, laid 10 inches to the weather, and the roof, too, is covered with wood shingles. Much of the exterior beauty of this house is due to the chimney and entrance which are of a local brick of unusual beauty. The value of a generous and well proportioned chimney stack for securing distinction to a design, is not generally appreciated, and when, as here, such a chimney is blended with the entrance the effect is particularly charming.

Living room walls are finished with a plastic material in a two-tone effect of tans and the result has been very successful. The entrance leads directly into this room, the huge west window of which commands an attractive view of the Latah Creek Valley. Communicating with the living room is a dining room, the walls of which are finished to match the living room walls.

Throughout this house high grade, nationally advertised products have been used, in wall finishes, doors, bath room fixtures, closet fixtures and flooring. This has been found to increase the salable quality of a house and to enhance the reputation of the company. A well known warm air furnace has been installed in the basement and this basement also contains a garage with direct access to the street.

The other house illustrated is of hollow tile and it was decided to build this without any other exterior finish; as this tile possesses a natural beauty similar to brick and offers a permanent finish. The size of the unit was another departure from recognized standards which caused the owner and architect some thought. It was noted, however, that the large scale is the very thing striven for in modern construction and it is uniformly successful practice to use wide clap-

boards and large units in stone work. The eight-inch tile have produced an effect which is fully up to expectation and much additional charm is added by the craftsman-like appearance which attaches to those things that are put together by hand. The variation in the thickness of joints, the surface of the joint itself, the slight variations of the courses all combine in the pleasing result.

The second point in our service is the completeness of our planning. There are so many details to be thought of in the planning of a home that it is almost impossible for the man to think of everything in advance and probably one of the chief fears in the mind of the prospective builder is the fear of extras. In buying automobiles the purchaser frequently finds that after his car has been delivered there are a number of extras which are really essential to satisfactory operation of the car, which have not been included in the original purchase price and for which he must pay out additional money.

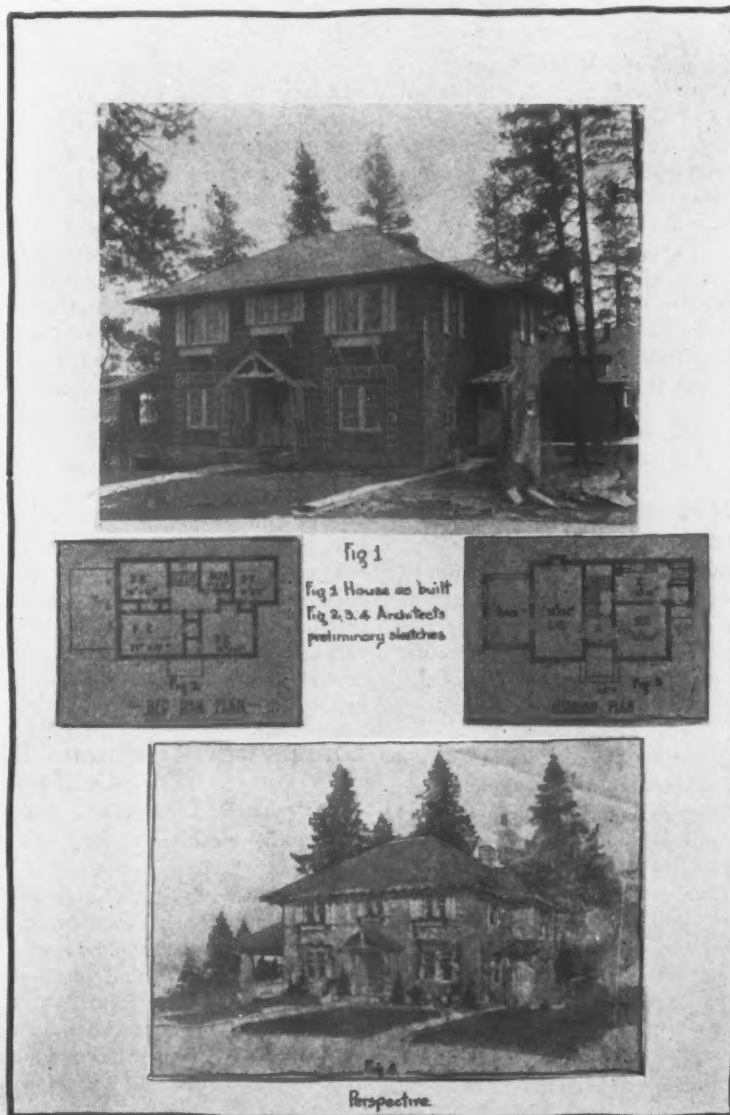
The home builder fears the same situation in building, that after the estimates have been accepted, the contracts signed and the house built, he will discover that there are still extras which he must have to make his home truly livable, which have not been provided for simply because there was no one who was familiar with such details who had given them sufficient attention.

The Monroe Street Lumber Company supplies everything in the way of building material and equipment which is required to produce an absolutely

complete house. We make it a point to quote a price which will cover every item of material, construction and equipment and to deliver to the owner an actually completed house. The result of this policy is that the owner is relieved of a great deal of worry and unexpected expense and talks to his acquaintances in a manner which builds an ever-widening confidence in our organization.



"THE small house is typically American. Thousands of them are being built every year, many of them on the supposition that the art of small house architecture is independent of its materials. A campaign for better planning and designing of small houses would be a distinct step forward in community development."



Preliminary Sketches, Perspective and Floor Plan, Prepared by Mr. Woodroffe for a Client, Together with a Photograph of the Completed House. Show the Value of This Method. The original perspective was in colors.

Newspaper Men Build National Headquarters

Monumental Building to House Correspondents' General Offices and Theatre Is One of the Notable Structures Presented in Duo-Tone This Month

By **BERNARD L. JOHNSON**
Editor, American Builder

THE press of the United States—in fact, of the world—is represented at our national capital. Included among the membership of the National Press Club are such famous correspondents as John Hays Hammond and Arthur S. Henning and publishers who have reached high public office, such as James W. Bryan and John Joy Edson. It is, therefore, quite fitting that the press of the United States should have a monumental building at Washington and our reproduction of Architects C. W. and Geo. L. Rapp's perspective reveals the impressive size and beauty of this building. Other renderings of great interest, this month, are the Maccabees Building, Detroit, by Albert Kahn, Inc., the new Royal Insurance Building, New York, by Starrett and Van Vleck, and Loma Vista Warehouse Building for the Central Manufacturing District, Los Angeles, by Frank D. Chase, Inc.

Building for the Maccabees, Detroit Albert Kahn, Inc., Architects and Engineers

This is to be an exceptionally handsome and well equipped building. The exterior is to be done in Indiana limestone on the two main fronts and a combination of limestone and light colored brick on both the south and west fronts. The base of the building, not less than six feet high, will be of polished granite. The window sash will be steel double hung.

The structure of the building will be of reinforced concrete with steel columns fireproofed for the lower floor. The floor construction will be of concrete of the hollow metal tile type with suspended metal lathed ceilings, the ceilings being kept as free of beams as possible.

Six elevators will be provided, plus one freight and one private elevator, which latter will serve only the Bond Department of the Maccabees, the elevator connecting the vault in the basement with the officers' space above.

It is the intention to have a handsome entrance hall wainscoted in marble with marble floors and decorative ceiling. The elevator cabs, signal lights, etc., will be of special design. The main staircase to the second floor will be given considerable importance. Above this, however, the stairs will be of plain steel construction, with walls lined with salt-glazed brick.

The typical offices will have cement floors, plaster walls and ceilings and base arranged for wire conduits. The trim throughout will be of walnut or butternut. The doors from the corridors to offices will have integral hollow metal jambs and trim. The corridor doors will have one full light of glass and transom over them, but there will be no borrowed lights in the corridors.

National Press Building, Washington, D. C. C. W. and George L. Rapp, Architects

The building, which will be known as the National Press Building, will be monumental and artistic in character, built subject to the approval of the Fine Arts Commission of Washington. At the same time, it will be the largest and most modern, high class office building in the American capital, where pressure for office space constantly is growing, due to the increasing number of interests that bring business and professional men and organizations to the seat of the government.

Adapting the idea of successful, professional and business buildings in New York, Washington and elsewhere to the National Press Building, it is planned that the major portion of the corps of Washington correspondents, representing the powerful and great newspapers and journals, trade publications and magazines in the United States, and all parts of the civilized world shall concentrate their offices in the National Press Building.

A portion of the structure will be designed especially to meet the peculiar needs of these workers, whose function it is to report and interpret to the United States and the world happenings, legislative and otherwise, in the Capital of the United States. Here individual newspapers, as well as groups of correspondents, will have their offices. The seventh to the eleventh floors, inclusive, will be set aside for this purpose, with single and double rooms and suites for the larger publications or groups of correspondents who desire common reception rooms, telephone switchboards, telegraph facilities, and the like.

The lower interior and rear portion of the building will be occupied by Washington's largest theater, seating 3,200 people, which the lessee, one of the largest motion-picture corporations, plans to make one of the show places of the capital. The company will contract to lease this space for twenty-five years.

Loma Vista Warehouse Building, Los Angeles, California

Frank D. Chase, Inc., Engineers and Architects

This fine new warehouse and manufacturing building is now being built in the Central Manufacturing District of Los Angeles. It is to be three stories in height, of reinforced concrete with face brick and art stone trim on all four exterior elevations. It will have standard steel sash with maximum light and ventilation. The floor size will be 100 by 164 feet, or a total floor space of 50,000 square feet. The building is designed for an unlimited floor load on the first floor and for the second and third floors 250 pounds to the square foot. There will be complete plumbing equipment and electric wiring on all floors, also complete sprinkler equipment throughout.

Royal Insurance Building, New York City Starrett and Van Vleck, Architects and Engineers

The new Royal Insurance Building to be constructed at Ann, William and Fulton streets, New York City, will involve an estimated cost of \$5,000,000. Plans were drawn by Starrett and Van Vleck of New York and provide for a nineteen-story structure with a total height of 256 feet upon a plot 177 by 119.9 feet.

The building will be of face-brick trimmed with limestone and is of the severe Adams type. At the eleventh, thirteenth, sixteenth and seventeenth floors are set-backs designed to comply with the zoning law, and the parapets here are trimmed with limestone. The corners and other points on the parapets are accentuated by limestone urns.

The more important set-backs on the eleventh and thirteenth floors are set off by limestone balustrades.

There will be entrances on Ann, Fulton and William streets, the back of the building looking off on another property.

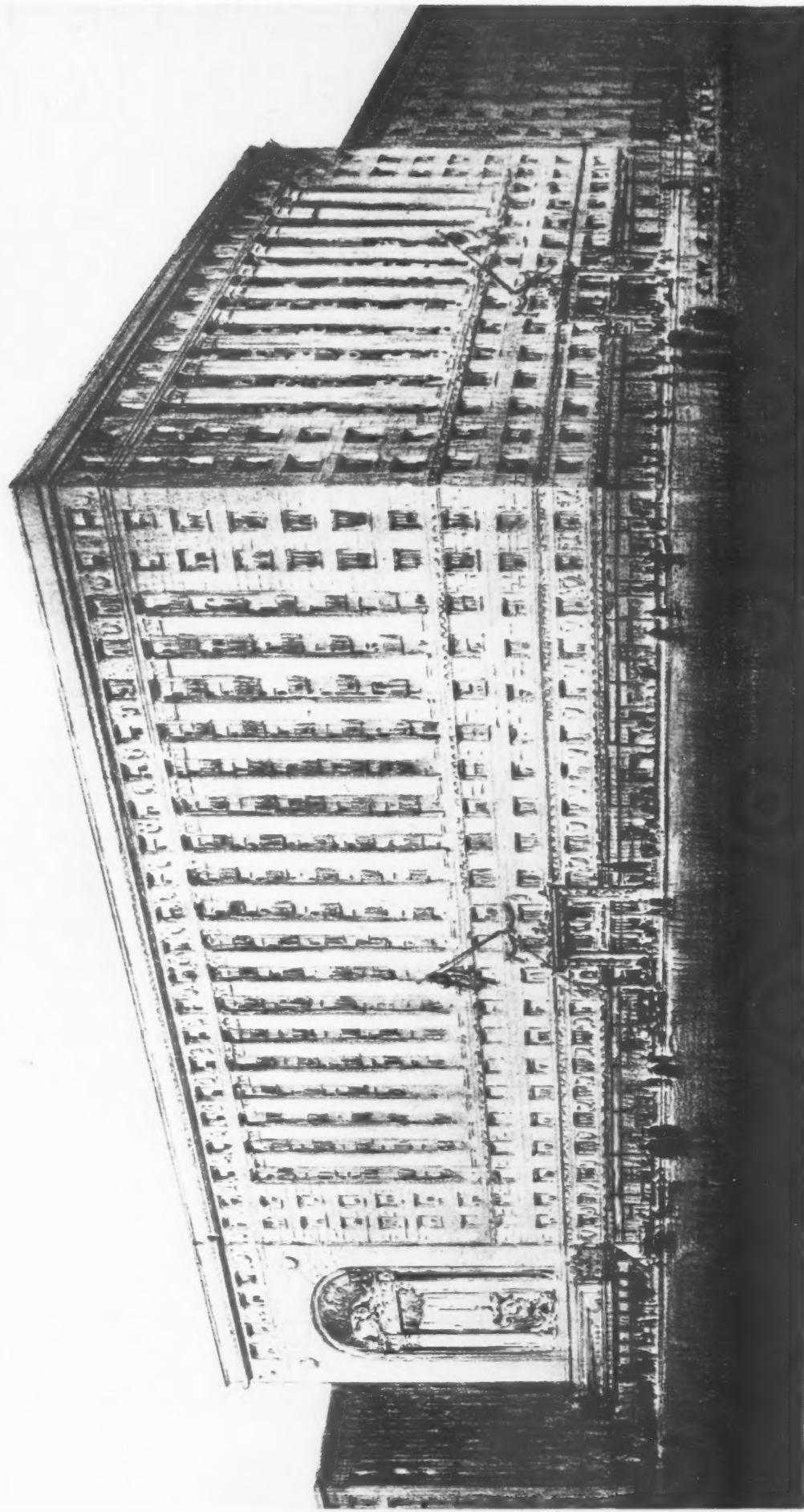
ART SUPPLEMENT *of* NOTABLE ARCHITECTURE



PLATE 65

The MACCABEES BUILDING, Detroit, Mich.;
Albert Kahn, Inc., Architects.

The AMERICAN BUILDER, January, 1926



*The NATIONAL PRESS CLUB BUILDING, Washington, D. C.;
C. W. and Geo. L. Rapp, of Chicago, Architects.*



PLATE 67

The ROYAL INSURANCE BUILDING, Ann, William and Fulton Streets, New York;
Starrett & Van Vleck, Architects.



The LOMA VISTA BUILDING, in the Central Manufacturing District, Los Angeles, Calif.;
Frank D. Chase & Co., Engineers and Architects.

The Basis of Business Success

It Is Quite Simple as Revealed in the Policies of the Hartwick Lumber Company of Detroit, Michigan

THERE is such a striking example of rapid but sound business growth in the record of the Hartwick Lumber Company, of Detroit, Mich., that it is both interesting and worth while to attempt to find the causes underlying this success. In the eighteen years since the company was established, it has developed into one of the largest lumber organizations not only in Detroit but in the middle west. It operates one of the most modern and best equipped mills to be found in which it manufactures all of its own finished lumber. It employs an average of 35 persons throughout the year and does an annual business running into the millions.

Probably the foremost cause which has contributed to this success is the man at the head of the organization, whose personality and executive ability are responsible for the policies of the company. Like most of the executives of large and prosperous organizations in the dynamic city where this company operates, William H. Kittle, vice-president and general manager of the Hartwick Lumber Company, is a young man, being still in his early thirties, but he has had a broad and extensive experience in the business to which he has devoted himself.

Mr. Kittle started in the lumber business in 1904, with Stiles Brothers, of Grand Rapids, Mich., and joined the Hartwick organization in 1912 as manager of its Jefferson Avenue yard. He was made assistant secretary and treasurer in 1916, and vice-president and general manager in 1920. His experience, extending over every branch of the lumber business, has given him a knowledge and keen insight which many executives do not possess and it embraces the entire process of lumber manufacturing from the production of the logs in the forest to the finishing of the product in the mill. But, in addition to being an expert on lumber production, Mr. Kittle is also an exceptionally cool and analytical executive and a successful salesman. His manner is quiet and unassuming and he inspires the confidence of all with whom he comes in contact and is held in the highest esteem by his associates in the company.

According to these same associates, it has been largely due to his vision, since the death of Mr. E. E. Hartwick about seven years ago, that the company has enjoyed its present strong position in the industry. It is in Mr. Kittle's policy in the matter of human relations that one of the secrets of his success can be found. He is a firm believer in everyone working with the organization and not for it. He is, at all times, perfectly frank in discussing

the business of the company with his associates. The term "associates" is used advisedly as Mr. Kittle does not look upon anyone in his organization as other than an "associate."

The door of Mr. Kittle's office is always open for any of his associates to talk with him about any grievance or suggestion, at any time of the day. Any employee, from the highest executive to the most humble helper, knows that at all times he is free to take his opinions to Mr. Kittle and that his views will be given courteous and honest consideration. The spirit of democracy reigns throughout the entire Hartwick organization and it is never necessary for anyone to run the gamut of numerous secretaries to be granted an interview with the chief executive.

About every two weeks the company has a dinner for its salesmen, yard managers and department heads. Details of the business are discussed, new ideas and products carefully gone over and considered pro and con. Everyone is invited to give his opinion. No new proposition is ever adopted or new product added to the line without the approval of the entire organization. Unless the entire organization is thoroughly sold on the new idea or product it is either forgotten or pigeonholed until the next meeting and eventually either accepted or rejected.

Another element in the success of this company is an accounting system which enables it to know, at all times, the exact condition of all phases of the business.

This system is considered one of the most up-to-date and successful systems in the lumber business and it has attracted the attention of large lumber interests throughout the country. Quite recently Mr. Kittle was asked, by a group of Canadian lumber dealers, to give them a talk explaining this system.

Aggressive merchandising is an element of success which the Hartwick company has not overlooked. It is now conducting an extensive advertising campaign in the form of a home builders' monthly magazine. This publication features homes in colors, as they will appear when completed, and is mailed to anyone interested in building. At the present time there are 25,000 names on the mailing list.

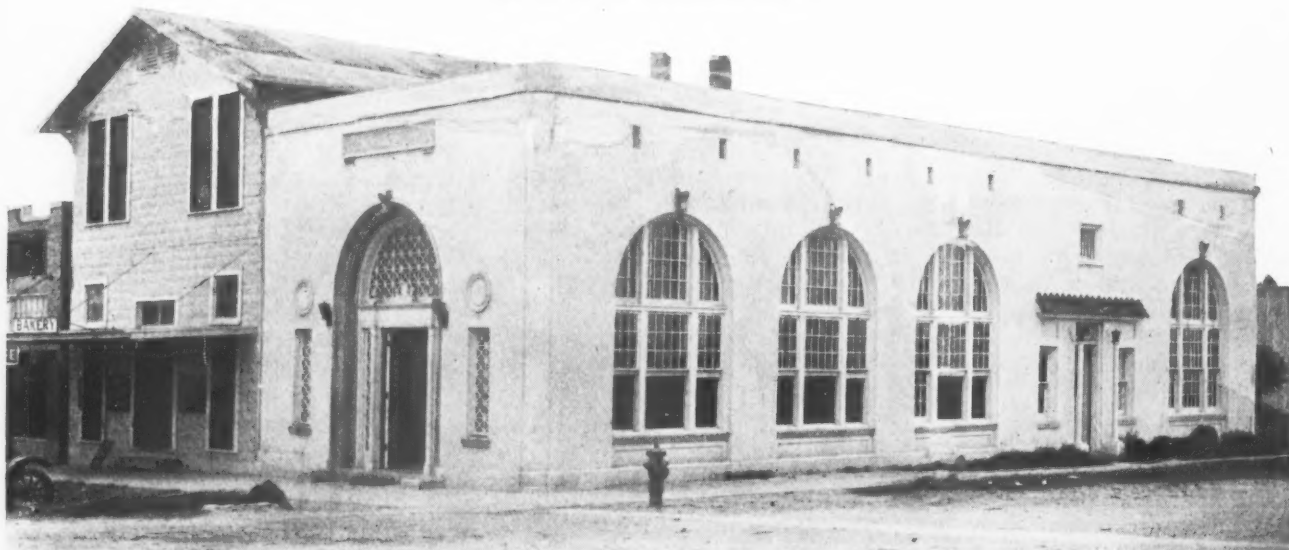
Mr. Kittle, when asked to explain the company's remarkable growth, said: "It is due to the fact that we are organized to supply instantly every need of the lumber buyer and that we have built up such a large volume of sales, through extensive advertising, that we are able to give our customers the benefit of large quantity purchases. In order to give the extensive service which we do, we carry one of the largest stocks of lumber in Detroit."



William H. Kittle, Vice President and General Manager of the Hartwick Lumber Company to Whose Wise Policies and Able Leadership Can Be Attributed Much of the Striking Success of This Organization.

A Distinctive Country Bank

By RUEL McDANIEL



This Country Bank Building, in the Small Texas Town of Karnes City, Stands Out From Its Surroundings by Reason of Its Distinctive Design and Construction. It is a complete departure from the type of brick bank building which is usually seen in small towns, being designed in Spanish style, worked out in a light colored stucco.

THE new building of the State National Bank, Karnes City, Texas, would do credit to a city of any size, although Karnes City has no more than a thousand inhabitants.

The building is distinctive in design and construction, considered from any angle, but the fact that the usual run of country banks apparently care little for general appearances of their buildings, so far as distinctiveness goes, makes the Karnes City bank home of still more interest.

Drive from town to town for a week at a time, and you will not likely see any bank building that departs from the usual type of brick construction. The average bank will be occupying a good, substantial building that is clean, neat and ranks well with any business structure in the town, but few there are that have homes that may be called outstanding in the average little town.

The State National Bank of Karnes City occupies a prominent corner on the main highway that leads through town. It has a frontage of 25 feet and extends back on another street 70 feet. It is this stretch of 70 feet that first greets the visitor as he drives in from the north on the highway, and the impression that the average person gets, whether or not he is in any manner interested in architecture, is a lasting one. The bank is easily the outstanding thing along the road, not only through Karnes City but several other towns besides. The building is worth

thousands of dollars a year from an advertising standpoint.

It is in Spanish style of architecture, one story high. It is brick and stucco, lighter than the average stucco finish. The cost was about \$12,000. Ralph Cameron of San Antonio was the architect.

On the long side there are three large Spanish windows, reaching from within 18 inches of the ground to more than two-thirds the distance to the flat tile roof. A single door near the far end of the building from the main street is covered over by a tiny tile roof, and there is a small window on each side of the door.

The interior of the place is even more distinctive than the exterior. The main entrance leads into a spacious lobby. On the left is an open office, cut off from the lobby only by a railing. Here the two active officers have desks. Adjoining the first office is another of equal size, but cut off by walls. This is used for transacting private business.

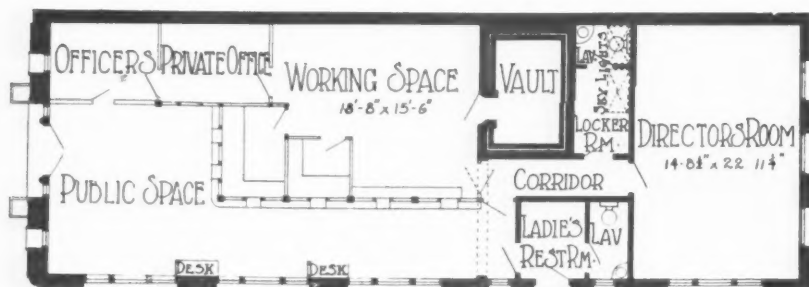
Then comes the working space and tellers' windows. This space extends out into the lobby about 10 feet, and runs back some 30 feet. There are six windows. This entire section is finished in Tennessee marble, topped with walnut woodwork and furniture.

The lobby extends to a wall in the back in which there is a door that leads to the side entrance. The side door enters into a small lobby off of which there is a rest-room for women. Back of this section come the locker rooms, toilets and vault.

The last space is used as a directors' room and extends the entire width of the building. It is about 18 feet wide.

Venetian blinds are used at all the windows, and the entire woodwork and fixtures blend admirably with the general interior finish. The floor is concrete.

The State National Bank spent little more on its new home than an ordinary brick bank building suitable for a town the size of Karnes City would have cost, but it has a home that is working for it every minute of the day as an advertising asset.



While the Floor Space Is Not Large It Is Well Planned to Provide for the Needs of the Business and the Interior is as Attractively Finished as the Exterior, With None of the Stiffness So Often Associated with Banks.

Wrought Iron Work for Interior and Exterior Ornament

By MARION BROWNFIELD



Wrought Iron for the Driveway Gate, the Patio-like Porch, the Window Balcony and at the Arched Doorways Harmonizes Most Effectively with This Stucco Bungalow of Spanish Design and Adds Much That Could Not Be Achieved by Any Other Means.

WROUGHT IRON is having a tremendously popular revival, for both the interior and exterior of the home, due probably to the revival of period styles in architecture.

Its contrast is very effective against stucco walls, whether they are built in the type of a Spanish casa, Italian villa, or an English cottage. One of its chief charms is its strong, yet graceful lines. Silhouetted against the austerity of stucco it is decidedly a relieving touch that deserves the description of "decorative." Yet it has adaptability, for it is successful with other building mediums. Brick, for example, is sturdy enough to harmonize with wrought iron railings. Texture being an important consideration from the standpoint of appearance, brick has a roughness that is admirably supported with this product of the anvil and forge.

Some of the most admirable examples of architecture in this country are the older homes found in Baltimore, Philadelphia and New Orleans. These illustrate how versatile wrought iron is, for the Colonial is exemplified on the Atlantic coast with dignified doorways, and the French-Spanish influence is recognizable in the charming iron balconies and gates of the picturesque southern city.

In old Spain there were three periods, beginning with the middle or Gothic, the new or Renaissance and Plateresque, when iron was wrought for first the church, chapel or cathedral; second, for the public and private building, and, third, for such hardware as locks, keys, knockers and nail heads.

From the second half of the fifteenth century onward the art there progressed so strikingly that nothing has since excelled it. Modern craftsmen rather copy the old models, with perhaps a tendency to simplify them for the

average home builder. For what home builder could afford to pay for ten years of skilled artisanship? In the cathedral at Toledo, for example, the "reja" or grill took this long to transform from ponderous metal—"hierro," as the Spanish term iron—into a tracery as delicate in effect as cobweb lace. It measured 21 feet high by 46 feet wide and was the work of Juan Francès, "master maker of iron arms," this title revealing the professional regard the Spanish had for the "rejar" or reja maker, at that period.

Toledo, indeed, was a great center of wrought iron manufacture, but ornamental iron also developed in Old Castile, Seville and Barcelona. Segovia, especially, was celebrated for its "rejas" or screens, which today inspire gates, grills, and balconies for our modern windows, doors and patios.

The "reja" is considered the finest craftsmanship of the old Spanish art. But the general scheme is simple. Slender spindles held vertically in the metal frame were held horizontally by brass-bars and the top was frequently crested. Designs copied architectural motifs of the period, and included finely wrought griffins, foliage, birds, masks, swans, coats of arms, dolphins, sheaves of arrows, centaurs, Biblical figures and legends in Latin or Moorish.

The Moorish influence on Spanish wrought iron distinguishes it from the simpler patterns of Italy. It was highly imaginative, and was responsible for gilding and silvering it to resemble the finer metals. Some of the rejas, for instance, were painted black and the borders gilded. Figures were frequently executed in repoussé against the long vertical bars of hammered and chiselled iron. Another very fine example was the reja of the Royal Chapel at Granada, at the famous Alhambra, made in three tiers. Altogether, the reja is considered to be the

(Continued to page 137.)



The Use of Wrought Iron Is Not Limited to Spanish Designs as Can Be Seen from This Hand Rail Which Is Equally Suitable for the Colonial Home.

Inside Show Windows Make the Most Effective Display

By J. PAUL ATWOOD

PRACTICALLY every retail store that contemplates making extensive alterations is planning for some sort of inside window. Display managers, ever watchful for more effective methods of showing their wares, have seized upon the inside window as an unusual architectural detail and are urging department store managers to construct lobby windows for them.

The managers of large stores have carefully checked up the sales value of inside windows and have found that merchandise displayed in them sells more readily than if it had been displayed in any other window. The inside window is not the fad of department store building, but the success it has achieved in the stores which have experimented with it bids fair to make it a regular feature of all new department store buildings.

The display manager today knows the dollar and cents value of a good display which people can see and he is trying to make it easy for as many people as possible to see his displays. The ease with which goods shown in it can be seen is the chief advantage of the inside window, an advantage that is especially appreciated by the large department store located in the center of the business district of its city.

The inside window is always a vestibule window of one sort or another. It is a more or less ordinary window placed under cover where people can stand, protected from the jostling crowds of the street, and do their window shopping.

The first inside windows date far back in the history of department store building. They were placed at the sides of the vestibule, adjacent to the outside windows. They were usually small and were employed for minor displays about which the display manager cared little. In New York City there are many windows of this nature. Stern Brothers, on Forty-second Street, have probably the best of these incidental inside windows. The display managers

of stores built as is Stern's no longer neglect their inside windows, but their insignificant size and their awkward position prevent really effective displays from appearing to the best advantage.

More recently, in the West, the island window has been developed and it has become the most common type of inside window. In the vestibule in which it is built there are usually four windows—two on the sides, identical almost with the old style windows. One in the back, which is protected from the light of the street by the shadows of

the vestibule, and the island window itself, which is exposed on four sides and which, therefore gives the display manager a chance to develop effects which are not attainable in the ordinary partially closed window.

No display manager would like to work entirely with completely exposed windows. There are many lighting effects that he desires which he could not secure in them. But one window, which is in effect an immense showcase, facing three sides on the vestibule and the fourth on the street, permits the display of small, unrelated objects with considerably more neatness than could otherwise be achieved.

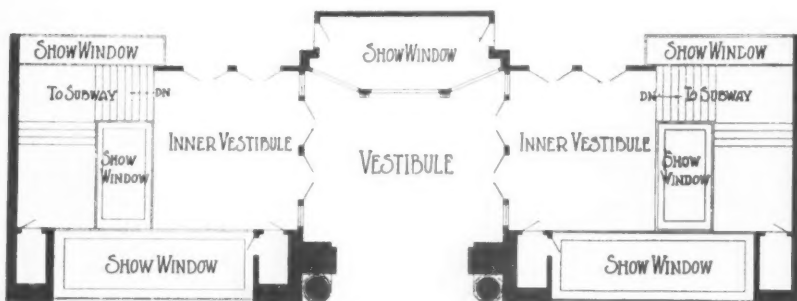
Small pieces do not show very well in the ordinary window. Either they must be placed in front, with a background of larger pieces, in which case the attention is diverted from the small to the larger, or the entire window must be filled with them, the inevitable result being an appearance of a disorganized display, messy, and unattractive. This is not the case with the island window. Inasmuch as prospective customers can see the display from four sides, it can be built with four faces, each one presenting a different aspect of the whole and each one directing the attention to the small objects displayed.

In addition to the island window itself, this arrangement provides for a large display window at the back of the vestibule. In some cases this is a set-in window with only one side exposed to the public view. More frequently three sides are exposed.

This rear window, being shaded by the vestibule, can be used to produce displays that have the same effect as stage sets. The lighting can be almost perfectly controlled, as it is on the stage, and, as a result, unusually attractive window displays can be shown in it. The difference between this window and the ordinary outside window is the difference between an ordinary stage set and an open air set. If you have ever witnessed open air drama during the day



Entrance to the A. I. Namm & Son Store, in Brooklyn, N. Y., Showing the Rear Window in the Vestibule Which Is the Striking Feature of the Layout.



Plan of the Outside and Inside Show Windows of the A. I. Namm & Son Store. Every possible foot of display space is used to advantage.

you know that much is lost because the electrician cannot light his stage as he wishes and, therefore, the usual stage set has to be abandoned. The rear window in the island arrangement is in almost the same position as the stage in a darkened theater and the display department's electrician can do wonders in producing an attention attracting lighting arrangement.

Recently Robert D. Kohn, Charles Butler and associated architects of New York City devised a newer type of inside window for A. I. Namm & Son's department store in Brooklyn, N. Y.

The great criticism on the island window arrangement is that it does not look impressive and that although the windows themselves may be attractive, it gives the building a disorganized appearance.

The Namm arrangement, on the other hand, is stately and impressive. There are five front windows, two of them on the street and three in the vestibule.

On either side of the vestibule are two fine Greek columns. The entrance is arched and the same effect is preserved in the interior of the vestibule by means of a three-panel arched mural.

The two street windows are designed as any other outside window, and the two windows which are placed at the sides of the vestibule are not vastly different from those in Stern's lobby.

The rear window, at the back of the vestibule, is the striking feature of this type of layout. It is built in the form of a hexagon with the rear faces cut off to form a back wall.

I spoke to Mr. J. De Vausney, display manager of the Namm's store, and asked him his opinion of the advantages of this type of window.

"We have closely checked the sales results of our windows," he said, "and we have found that merchandise displayed in the center window sells faster, other things being equal, than if it were displayed in any of our other windows. This window is our No. 1 window and is reserved for the exceptional displays which we wish to get across to the public.

"It can be seen from the street (which, incidentally, is one of its advantages over the rear window of the island arrangement) and it stands out well enough to cause passersby to stop in and examine it more closely. The window shopper will not miss it, after having once secured a glance of it from the sidewalk.

"It is as perceptible as it is from the street, because of the interior lighting we employ in it. The vestibule is dark enough to permit the use of this lighting and viewed from the outside, it shines in striking contrast to all the other windows one passes while walking along Fulton Street.

"Our lobby arrangement is advantageous because it permits our customers to observe the window and its contents

without being molested by the mobs of people that pass on the street. Our vestibule has become a meeting place for many people.

"We also have two inside display windows at our subway entrances, but we find that these have no distinct merchandising value; they serve by keeping the name of the store before the people who use the subway, and that is valuable, too.

"But for returns window No. 1 in the vestibule is the very best salesman I have ever met."



Wrought Iron Work

(Continued from page 135.)

most characteristic and artistic contribution of the Spaniard to wrought iron.

From its designs for balconies, screen valances, railings and gates have been borrowed. The Spanish balcony or "verja" is, of course, a tradition. The modern balcony is apt to be simply a decorative window railing, such as may be seen in the illustration. However, it is also being adopted within as a picturesque feature where rooms of the second story overlook the living room or entrance hall or patio.

Because wrought iron hardware is durable, as well as attractive, it is being revived to a considerable extent in the southwest of our own country. On the estate of the late Thomas Ince, at Beverley Hills, Cal., the early Spanish-American architecture is quaintly emphasized with iron latches, locks, keys, hinges and nail studded doors and furniture. Other decorative iron hardware of modern popularity includes knockers, lanterns, weather vanes and supports for pavilion awnings.

Gates of wrought iron are especially attractive for the patio as they suggest privacy and protection as in the olden days. But they are often used

for driveways, porches and other entrances. Within the home, gates are a new tendency for stairways, landings and entrances to rooms built at different levels.

The wrought iron hand-rail has equal charm for the front stoop, or the interior stairway. The one shown in the illustration is typical, and adapted to Colonial architecture as well.

Its beauty combined with strength has led to its continually increasing favor for home fittings. The introduction of candle sconces and curtain poles with stucco walls merely paved the way for movable furniture of ornamental iron. Lamps, console tables, glass topped coffee tables, and stands for ferns, fish bowls and bird cages, are in great vogue for the up-to-date hall, sun, living or dining room.

The whole idea is that wrought iron, whether used for interior or exterior decoration, lends a vigor not to be obtained in other ways.



Department Store of A. I. Namm & Son. From the outside only a small part of the window display space is visible and that is the least effective sales aid.

The High School of Today

The Architect and Builder Must Know Their Jobs

By J. HAROLD HAWKINS



The Rear of the High School at Coronado, California, Is as Beautiful as the Front, and in Fact It Includes the Main Entrance to the Auditorium Which Rivals the Main Entrance to the Building as Shown Below.

IT wasn't so very long ago that the young people had to sneak away from home to attend the "awful" dance on the "QT"; or, if the daughter of the house voiced a desire to have something to do with the stage, she was promptly, and very definitely, "shushed." Today all that is different. We have outgrown our Victorian limitations. We have, in fact, gone to the other extreme. Ofttimes it is the parent who is now "shushed."

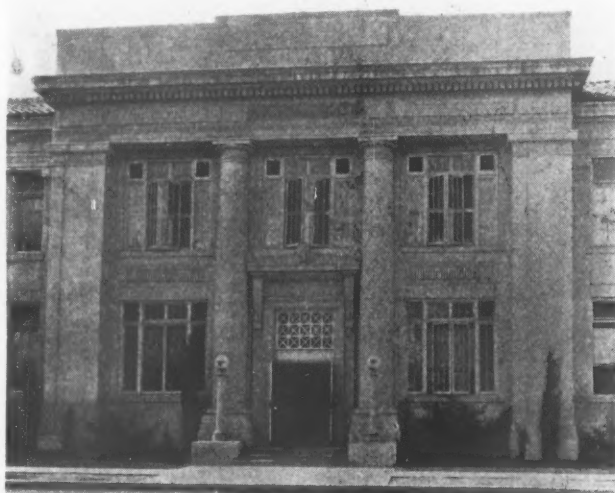
Proof of this is in our modern high school buildings where our youngsters are taught what the most advanced of us think best that they shall learn. Here, then, we find the stage as a built-in convenience; indeed, it often is the most prominent feature in a school building. And because the students completely manage this former "instrument of downfall," they consequently learn all about it from the scene shifter's job to the premiere's stunt before the footlights. And some of the amateur productions now staged in our high schools will open the eyes of parents.

On the other hand, bal-

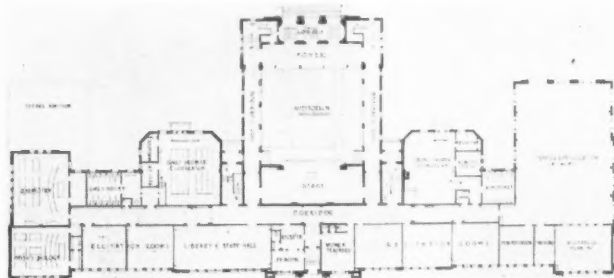
ancing subjects, as it were, are included. Today's high school girls learn all about the baby's layette, and to sew for all hands, in fact, from the infant to the grandmother, not forgetting the Miss herself. These budding women also learn to care for the sick.

There are many other subjects, too, such as cooking, typewriting, repairing automobiles (for both girls and boys), dietetics, hygiene, classic dancing; and so on ad infinitum.

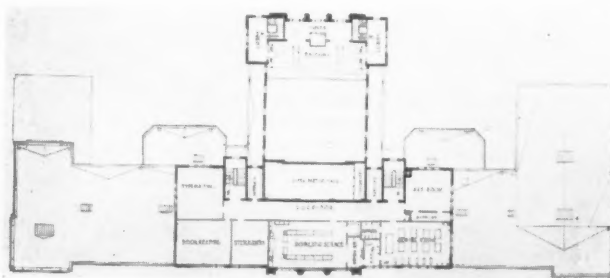
In view of these drastic changes made in recent years in the scheme of our public schools, there has fallen upon the architect and builder of high schools a task that is at once highly specialized and complicated. From the dignified, classical entrances now considered necessary for youths' inspiration, to the shower baths that promote appreciation of cleanliness and hygiene, the men entrusted with the erection of a modern high school must thoroughly know their jobs. No building offers a chance for more study and satisfying achievement than does the modern high school.



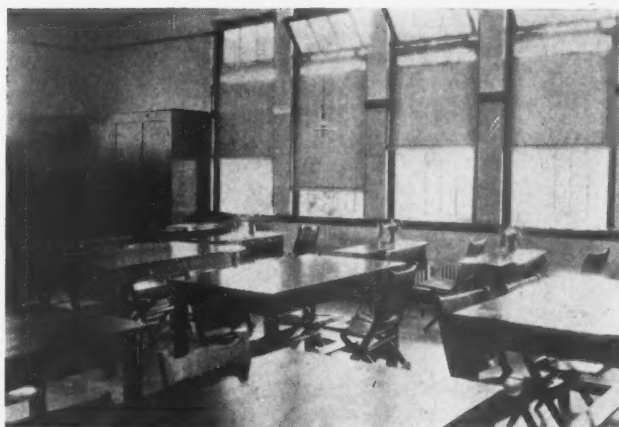
The Dignified Beauty of the Main Entrance Should Serve as an Inspiration to All Who Pass It as Well as to the Students That It Admits to Their Classes.



As Seen in This First Floor Plan, the Auditorium, Though Accessible from the Main Corridor, Is Separated so That It May Be Used for Community Purposes Without Disturbing the School.



The Second Floor, Which Extends Over Only a Portion of the Building, Provides Space for Such Special Departments as Bookkeeping, Typewriting and Stenography, Domestic Science and Art.



Instead of Learning to Knit and Weave at Home the Modern School Girl Learns to Fashion Her Clothes in Her Classes at School.



Cooking Classes Are Equipped with All the Utensils Necessary to Test Out in Practice the Principles and Theories Which They May Have Been Taught in Class.

In Coronado, Calif., there is fitting example of such a building; T. C. Kistner, San Diego, architect. Here we find everything from a beautiful front approach and inspiring entrance to a most complete interior and adequate grounds for recreation and sport.

The property occupies an entire city block of ground, and is across the street from a city park of like dimensions. The front entrance, as well as the main portion of the building, is two stories high, and classic columns grace each side of the Greek doorway. Red tiles on the roof of the two-story portion contrast in color with the light brown stucco exterior of the building. The roofs of the one-story wings on each end are flat.

Instead of using the main entrance for access to the auditorium, in this particular school building the usual layout has been reversed, so that the foyer is reached directly from an independent entrance across the building from the school entrance. This feature makes the use of the auditorium possible for outside community purposes without disturbing the school in any way.

The stage butts directly against the wall opposite the school entrance, its walls forming the corridor wall for the school proper. However, via two side corridors that reach along each side of the auditorium, the foyer is connected with the corridor of the school thus making the auditorium entrance available for school uses, and also providing an extra fire exit.

On one side of the wing the auditorium occupies is the girls' shower and locker room, while on the other side is one for the boys. Both these rooms connect directly with the athletic field at the immediate rear of the school.

The principal's office, a spacious room for



The Auditorium and Stage Are an Essential Part of the Modern High School and Afford a Valuable Training to the Youth of Coronado.

the women teachers, and a reception room, are all three entered from the main entrance hall of the school. Each of these rooms has a private lavatory. This short main entrance hall opens into the corridor of the school which stretches away in both directions, and is lined with built-in steel lockers. The library and study room, and the various recitation rooms open into this main corridor. At one end of the corridor are the laboratories for chemistry, physics and biology. At the other end of the corridor are the shops for manual training.

Two stairways lead from the corridor to the second story. Here is another corridor off of which are the highly specialized rooms for typewriting, bookkeeping, stenography, domestic science, sewing and the art department. Built-in appliances, adequate and well arranged closets and store-rooms, make the teaching of these many and modern subjects easier and more thorough.

There is one thing missing, however, in this particular building which most schools now have—that is a cafeteria. But Coronado is so situated that its area can never increase and each pupil can easily walk home for luncheon and be the better for the exercise in the usual sunshine of this isolated little community.

All in all, the Coronado High School is a model of present-day requirements and a credit in efficiency and design to its creators.



Forest Receipts Increase

BREAKING all records in the history of the U. S. Forest Service, receipts from the sale of national forest timber for the quarter ending September 30 amounted to \$1,055,165, according to reports of the chief forester.



Foundation Plantings and Graceful Trees Add an Atmosphere to the Coronado High School Which Is in Perfect Keeping with the Beauty of Its Architecture.

Insulation Scores New Success

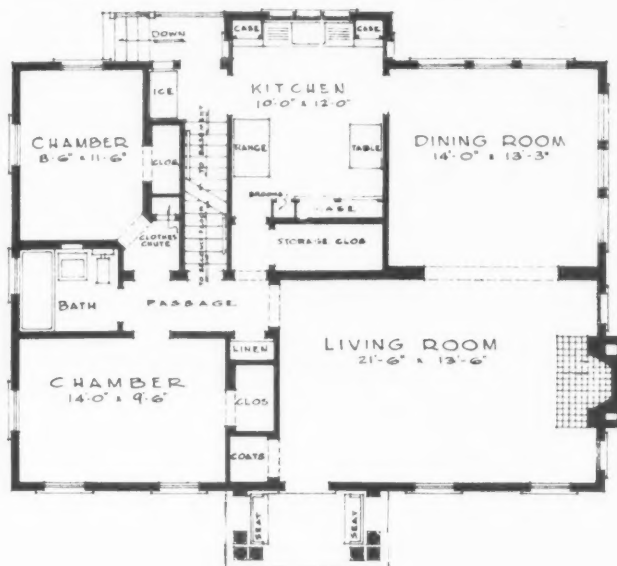
New Residence of Mr. H. S. Ashenhurst, Chicago, Demonstrates Big Saving in Radiation and 50% Saving in Fuel Cost

THERE have been many demonstration homes erected to educate the public in the latest building ideas. All of them have been good and all have attracted a good deal of public interest and attention.

During the month of August there was thrown open to the public in one of the Chicago suburbs, a demonstration house that taught a whole lot more than the ordinary lessons. It was good architecturally, and the furnishings and interior decorations were beyond reproach, but in addition to these lessons the very practical lesson of building cheaply for warmth and fuel saving was demonstrated.

The owner of the residence, Mr. H. S. Ashenhurst, has been known as an authority on insulation and has done pioneer work in developing insulation materials. His house was a demonstration of what can be done in any community, using ordinary frame construction and filling the walls between the studs with a plastic insulation material made from gypsum. The same material is poured in between the roof rafters to cut off the large heat loss upward.

That the general public, as well as architects, builders and real estate men, are very keenly interested in the possibilities of this type of insulated construction, was proved by



The Floor Plan of the Ashenhurst Home Shows Five Large Rooms Very Conveniently Arranged.



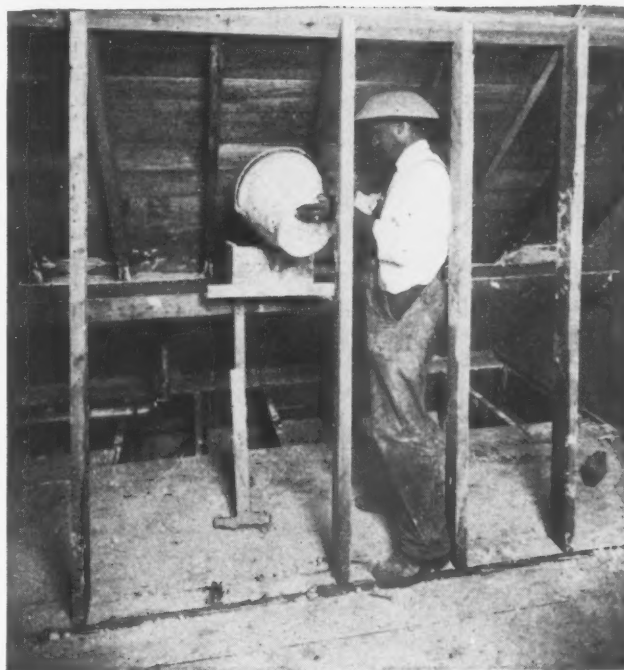
* More than 10,000 Visitors Passed Through This Insulated Residence of Mr. H. S. Ashenhurst, Edgebrook Manor, Chicago, During August When It Was Open for Inspection. This was one of the unique stunts of The Lonnquist Company, Chicago realtors, in opening up this subdivision.

the crowds of people who thronged through this house all the time it was open for inspection. It is estimated that more than 10,000 visitors went through this house in less than three weeks.

Saving in radiation and saving in fuel cost were the big drawing cards. The fuel situation is an item closely touching the individual owner's pocketbook. What we all want is a warm, comfortable home and a low fuel cost. Incidentally, the warm home in winter is recognized as being the cool, comfortable home in hot weather.

Mr. Ashenhurst selected gas as the modern fuel for this thoroughly modern home and the savings worked out by the engineers of the Peoples Gas Light & Coke Co. of Chicago, who furnish this fuel, would apply equally well to any other type of fuel. However, it is Mr. Ashenhurst's contention that by using this insulated construction he would be able to heat this home so efficiently that gas heating for him would be no more expensive than coal heating in any ordinary house of this size. The Peoples Gas engineers concur in this opinion, pronouncing this home one of the best they have ever seen for economical heating. They lay great stress on the fact that here at last, with this thickness of insulation, a home can be heated with gas as cheaply as with anthracite coal and without the dirt and muss connected with that character of fuel.

You will notice by the cross section construction view on an adjacent page the full insulation of this building and how the insulation is poured 4 inches thick in between



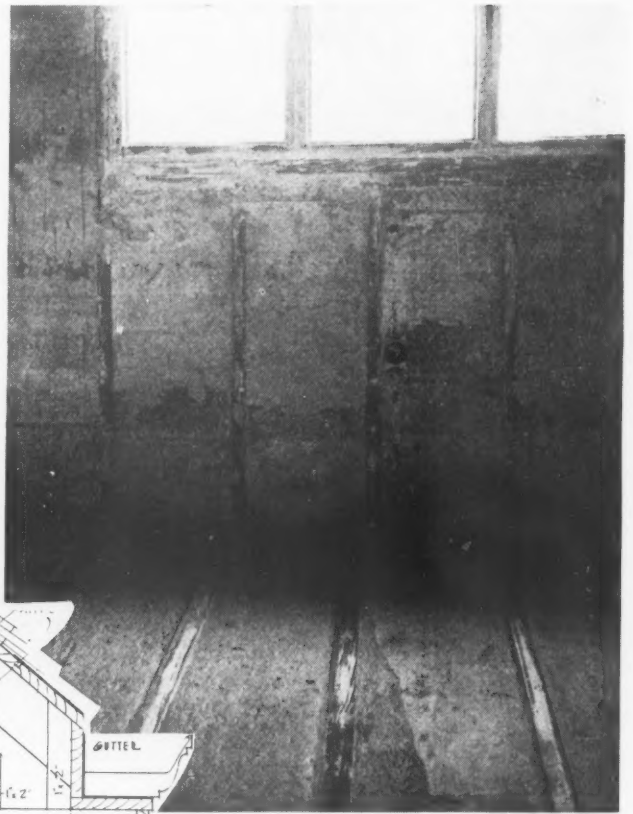
Workman Pouring the Gypsum Insulation Into the Rafter Spaces, Making a Heat-proof Roof.



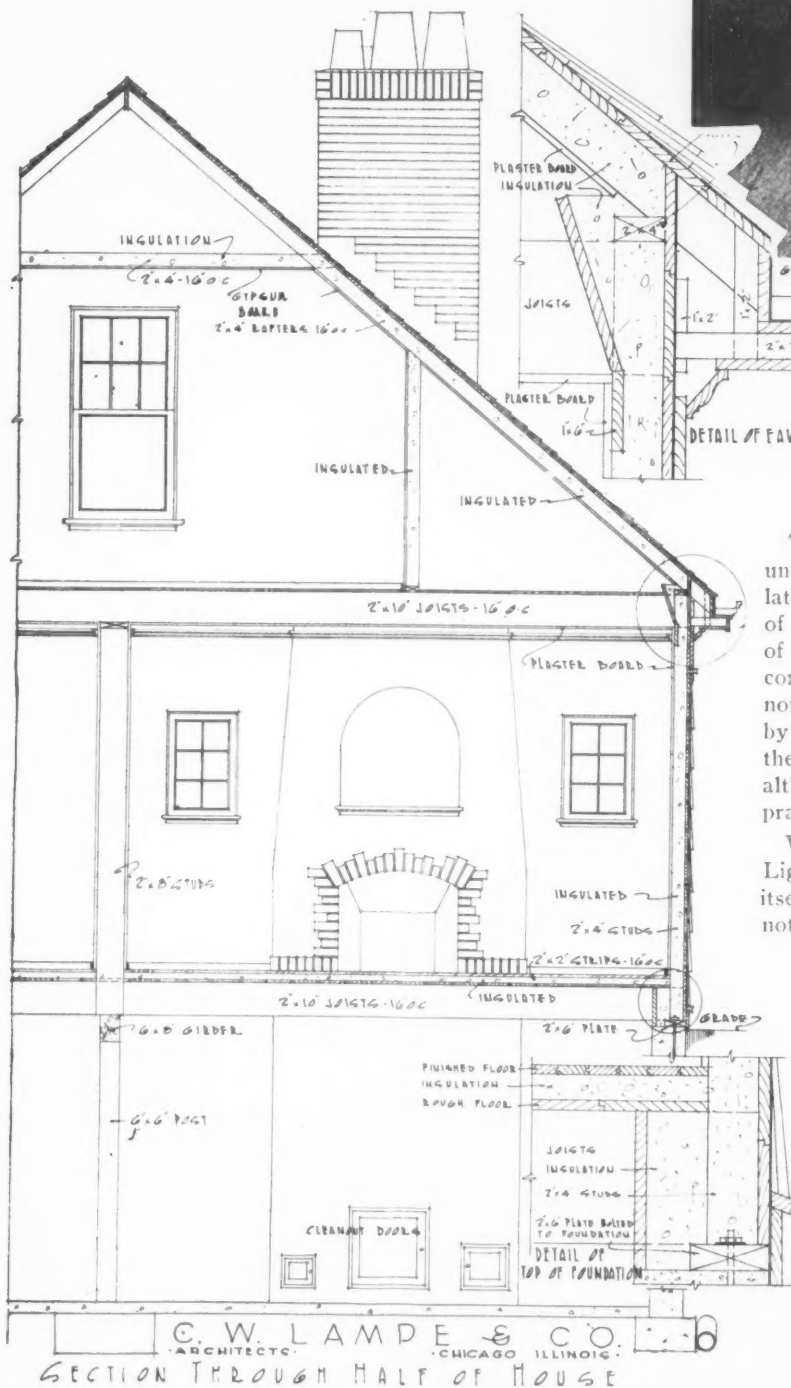
The Beautiful Living Room in the Residence of Mr. H. S. Ashenhurst. The walls and ceiling are rough cast finish over Gypsum Board.

the joists, completely sealing all cracks and crevices. It is an undisputed fact that dead air cells form the best insulation known and this material contains millions of such cells, each separated from the other by a strong partition of gypsum, which in itself is a material of low conductivity. While it is a foregone conclusion that insulation of any kind is good, nevertheless, it depends upon the thickness of that insulation in order to obtain the ideal results.

You will also notice in the same illustration that the floors have an application of the same material. This is something relatively new in home construction and answers two purposes. First, from an insulation standpoint, it shows relatively the same results as it does in the walls. Second, being composed of millions of dead air cells, it is also a sound-deadener of the highest quality, making even a residence free of objectionable noises.



Close-up Photograph of Gypsum Insulation in Floor and Side Wall Construction. The porous Gypsum fills completely the space between the studs, making both a heat-proof and fire-resisting wall.



Construction Detail of the Ashenhurst Residence Showing Gypsum Insulation in the Side Walls, Roof, Floors and Upstairs Ceiling.

There is one other point which is not only unique but of the greatest importance. This insulation made of gypsum which in itself is a material of refractory nature, will not burn. It is a matter of record that wood, when completely or semi-completely surrounded by a fireproof material will not burn, due to the fact that it is not surrounded by air, which in connection with the surface of the wood forms combustion. In this case, although the house is of frame construction, it is practically fireproof.

We have been informed by the Peoples Gas Light & Coke Co. that the cost of a gas boiler itself would have been \$436.00 if this house had not been insulated, whereas it cost \$230.00. They further estimate that the gas for heating this house would cost from \$300.00 to \$350.00 uninsulated, but that it will not run to exceed \$175.00 in this house as built. A comparison of the saving of radiation shows 600 feet if uninsulated, compared with 295 feet as actually installed.

The total cost of insulating this house, including the material and the labor for installing, amounted to \$432.00. Considering the saving in cost of the boiler and radiation, you will notice that there has been an actual saving in the original cost of this home. Therefore, the insulation not only cost nothing, but Mr. Ashenhurst has a house which is very superior—cool in summer and warm in winter, with no drafts or other conditions which at times go to make a disagreeable home.

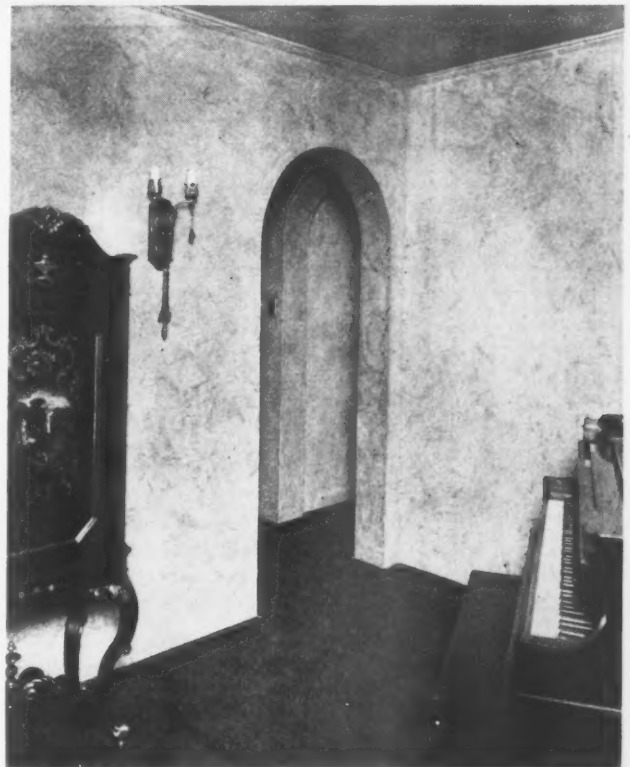
While we have been talking about these insulixed floors and walls making an ideal home as far as comfort is concerned, there is one other feature we wish to call to your attention. This feature is the application of gypsum wall-board throughout for the interior walls. The visitors inspecting this house were very favorably impressed with the beauty of the plastered walls. The decorators have carried out a rough texture effect in the Spanish style which harmonize beautifully with the arched openings and entire absence of wood trim which the architect, C. W. Lampe & Company, had given the interior.

A combination of homelike beauty and attractiveness, together with low construction cost and low cost for fuel for heating, certainly assures a satisfactory home, one that is easily bought and paid for. These advantages so well brought out in this little home of Mr. Ashenhurst were evidently much in the minds of the many visitors who went through the house when it was open for inspection. The AMERICAN BUILDER is glad, through these pages, to pass along the knowledge of this insulating method to home builders all over the United States.



Expositions to Be Made Annual



ABOUT fifty real estate boards that held home ownership expositions during the last year are planning to make the shows annual affairs. Inquiries, coming in from boards in all parts of the United States, to the National Association of Real Estate Boards, point to a growing interest in home construction.



Detail of Door Openings in the Ashenhurst Home.



The Dining Room in the Well Insulated Home of H. S. Ashenhurst.

	<p style="text-align: center;">LANDSCAPE ARCHITECTURE AND THE HOME</p> <p>A DEPARTMENT CONDUCTED BY</p> <p style="text-align: right;">F.A.CUSHING SMITH LANDSCAPE ARCHITECT C H I C A G O</p>	
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Evergreens For Spring Planting

By F. A. CUSHING SMITH, Landscape Architect

WHETHER you are planning to complete the building of your new home in the early spring or in the late fall, the large family of so-called evergreen trees will indeed fill a very large place in the border planting. With the taller varieties of trees unsightly objects can be screened, even large buildings. With the small or dwarf species the ground may be covered in sunlight or in shade, or the front elevation of the house or porch given a setting of beauty and permanence.

To those of my readers who may live near the Great Lakes in the northern part of the United States, you may find that an evergreen which looks well in the nursery catalog or grows well further South, cannot be grown successfully in our northern winters.

An evergreen grows best in a soil which is a sandy-clay or in a sandy-loam, some thriving on bare sandy knolls, wind-swept and forlorn. The soil conditions, which the stiff clay present near the lakes and the sudden changes in temperature make all except the most hardy varieties require some protection. They may be covered with burlap, compost, or leaves and well-rotted fertilizer, or if the season is very severe all of this protection may be essential.

Some of you may be building or planning to build in the city, and if so, remember that the needles of the evergreen family need air and moisture, much of which is absorbed through the pores on the needles. When these become clogged with smoke, soot and dust, along a highway or near a belching factory chimney, they need to be regularly sprayed with water, to insure open pores through which the tree breathes.

Some of the large group of evergreens can be used for a wind-break toward the north of an orchard, or to stop the drifting snow, and to keep the cold winter winds away from an otherwise exposed home on the level plains. The white pine, the cedar, the towering spruce, and the hemlock, all seem well adapted to such use. Not all of these trees are fast growing, and nearly all evergreens need care in transplanting, due to the tap-root.

The white pine, while a comparatively rapid growing tree, with marked and easily discernible whorls of yearly

growth, cannot be easily transplanted because of the long root. So rather than secure an immediate effect, at a much larger expenditure, with the added danger of the death of the larger tree, set out the smaller. They stand the change better, and will be in every way easier to adapt to the changed soil and climatic conditions.

Among the pine trees, the white pine, now fast disappearing as a large forest tree, has long slender needles in groups of five, and has rather horizontal branches, and deeply furrowed bark. Fortunately the pine is quick in reproducing itself, and about the base of some of the larger mother trees, we can find large groups of pine tree seedlings, rapidly growing to large trees in the more open spaces of the forests. The wood of the white pine is a favorite for house finishing, window sash, since it is light, soft and easily worked. The white pine will not grow well in the shade, except when very small. Along an old orchard in Amherst, Mass., stands a double row of fine old white pines, where, for years, they have made more temperate the orchard to the south.

The pines are nearly all of them attacked by white pine blister rust, and scale, but where sprayed in time this danger can be eliminated.

Another pine which can be grown on sand uplands, which may be too sterile to grow other trees, is the rather gnarled and

picturesque pitch pine, which reaches a height of 70 to 80 feet. In this variety the needles grow in groups of three, and the cones are much shorter than those of the white pine, with a thickened end to the cone scales.

The Austrian pine, growing when mature to a height of 100 feet, is worthy of more attention than it has been given on the home grounds. It takes about 25 years for it to grow to be 30 feet in height, but its dark blue green needles, which are grown two in a sheath, 4 to 5 inches long, and very sharp at the end, have given to the tree a well-deserved popularity. So dark are the needles that it is often called the black pine. Here it is necessary to plant small trees due to the long tap-root.

Another pine with its needles grown in groups of two is



A Towering White Pine Along a Country Road.

the Norway pine, which is an upland tree, preferring dry sandy soil, and usually scattered in the open groves on the ridges and hillsides overlooking the lakes of New England.

The only dwarf pine of any importance to the home owner is the Mugho pine which, even when mature after years of growth, is only 4 to 5 feet in height. Its spread may, in the same length of time, reach 6 to 8 feet, and it needs annual shearing to keep it in shape. Unlike the other pines there is no main trunk but numerous spreading stems. It is a native of central Europe, where in its natural habitat it has always been dwarf.

Of the large juniper family many friends are found among the members and strange to say they all look well when planted together. They will not stand freezing and thawing, and in sections where sleet storms are common, these trees should be covered with burlap. The junipers will stand trimming and should be trimmed to the desired shape and height each spring. They are especially interesting for foundation planting, with their rich green foliage and pretty berries. The Cannartii juniper grows ultimately to a height of about 15 to 20 feet, its foliage heavy tufted, and with blue and silver berries of which the birds are very fond in the late autumn.

Pfitzer's juniper has become, during the last 15 years, the most popular of the low-growing evergreens. It is compact, dense in foliage, absolutely hardy, and immune to insects. The tree is usually broad and drooping but if we take the leader and stake it up it may be made a pyramidal tree. Since it stands trimming it can be kept to any height or shape.

There are two or three varieties of junipers which can be used well in a rockery, or on a sandy hillside as a ground cover, due to their trailing, dwarf habit. The Savin juniper (*Juniperus Sabina*), is very dense and tufted, and the Japanese trailing juniper, with long branches growing close to the ground, may reach a diameter of 10 to 15 feet. The *Canadensis* juniper is also an excellent ground cover for the shady spot or the lonely rock-strewn hillside. It is never higher than 2 or 3 feet, and the leaves, sharp-pointed and gray-green, are marked with broad white bands which give it a silvery effect. While the berries are 3 years in matur-



The Dwarf Yew Is Especially Attractive on a Hillside.

ing, they are used medicinally when that time arrives.

The arbor vitae, with its ironed flat and fern-like needles, is sometimes called the cedar, but it differs from the red cedar in that the latter has short, sharp, flat needles. The mother plant, or *Thuya Occidentalis*, from which over 50 distinct varieties have been developed, is one of the finest of hedge plants, comparing favorably with the hemlock with its lighter green, softer foliage. The arbor vitae are usually hardy except in exposed situations, and do well in a moist location. The ordinary variety is bushy at the bottom, pyramidal and rather formal in outline.

Another variety much used in formal gardens is the pyramidal arbor vitae, where its spires often outline a pool, or accent the corners of the garden walks. Ware's Siberian arbor vitae was introduced by Thomas Ware, an English nurseryman, in 1850, and grows to the height of from 6 to 8 feet only. The ordinary variety at times attains a height of 30 feet. This variety has foliage of a darker green, very heavy in texture, and deeply crested. The branches are also short and stiff, and its best use seems to be in hedges, where it is especially long-lived.

The dwarf, globe-shaped arbor vitae, Woodward's variety, is but 3 feet in height when mature and is useful for low borders, for foundation planting, or for planting in groups with yew, spruce and juniper.

The last important group of evergreens are the yew trees, *Taxus*, and here the American variety, or *Canadensis*, is the dwarf variety. This is but 2 to 3 feet high, very hardy, with dark green foliage in summer, but taking on a reddish tinge in winter. The berries are fine for table decoration and are a bright scarlet in color. This *Taxus* grows well in the shade. The Japanese *Taxus*, or *Cuspidata*, is the tall tree, 40 to 50 feet in height, and for many years has been cultivated in Japan, where it withstands extremes of both heat and cold. The dwarf variety of the Japanese, or *Brevifolia*, is irregular in habit, 3 to 4 feet in height, with bunches of black green foliage.



Home Expositions in Florida

THE Jacksonville, Fla., Real Estate Board has recently sponsored the first Own Your Home and Building Exposition ever held in that state. The show will be followed by similar expositions over the state.

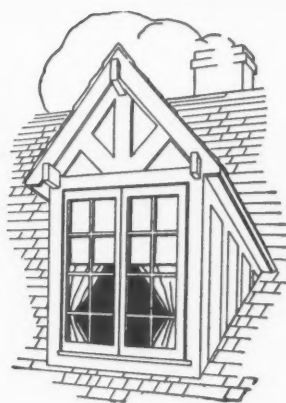


Evergreens Used as a Accents in a Formal Garden, as Well as in a Low Hedge, Make a Spot of Color Even in Winter.



DETAILS of HOME BUILDING

by V. L. SHERMAN
Lewis Institute of Technology



Detail 10—Presentments

THE topic "presentments" is possibly a shadowy one, having to do with the lights and shadows, lines and bulks that do to make up the "home." To do any justice to the subject and allot it its value, is a very difficult job. So much is said and written about art and its relation to architecture that it has become largely a question of suiting one's self. Results then are governed by common sense if art is not striven for, and also if it is. Exclusion of patterns, styles, fads, is in our humble opinion the first step to real craft in building. Bacon reminds us to build for utility rather than for appearance. Sound advice.

In this connection it might do to note that many tell us that interference with the architect's work is generally fatal to the successful outcome. And to this we reply that the owner has no greater friend than the good architect. He it is that hauls the ship close to the wind without spilling from the sails. He is concerned as heavily as the owner in bringing all the ideas under one roof. The percentage of homelike houses is to his credit, and to the everlasting credit of the builders who have the perception. Good builders and architects are the navigators who can take the sights.

"Beware of patterns, because their incessant appeal is like drops of water falling on the flesh. And remember that plain spaces of quiet color are restful; they resemble silence, while pattern, pattern, everywhere is like loud and incessant talking." To get to the point take Fig. 1. This place is, you might say, all roof. But its form, prescribed by the climate and the surroundings, relates it to many sturdy ancestors. It wouldn't look well in a crowd, however.

We are on the subject of roofs, and it was just noted that climate has an effect on the lines of a house. Though colder lands and steeper roofs are associated what can we say for the roof that is so steep that the least thaw will bury the passerby under an avalanche. And how about the Swiss? Roofs are traditional, except in this country, but we can find the angle of repose individually with a little common sense, and not too much sawing of rafters.

Some object strenuously to the partition of roof spaces by sharply denoted valleys. There is some reason for this, but to overcome it we can fill the valleys; blocks, raised sheathing, and shingles carried across on a radius. It is no new devise, and it is quite a merger of roof lines.

There is some little reason, too, in the advice about quiet spaces. Houses are prone to fill themselves with windows at the least excuse, so much so that bed posts can be seen from most any street. To point the opposite notice Fig. 2. It may seem strange that every room in this house has ample window space. The effect is certainly against it. Yet there is a quiet country air about the place. The added wall space must give one a great chance to stretch and

yawn without taking cold. Then there is an absence of half-timbering which some deem essential to this type of straight line English house. Would it really add to the picture?

We will go along with Ruskin a little further on the matter of roof. His implication that we note the roof at the first, that we literally give the house the "up and down," may have something in it. Here is Fig. 3. We have a solid roof, a quiet space below the snub end, but a regular spasm of windows below. No harm done. And why? Because the designer got what he was after in a common sense way. He may have wanted plenty, but he wasn't after more than he wanted.

In Fig. 3 you will notice that a beam is shown above the window group. This indication of support adds a note of weight to the walls and roof above. There is a tendency in some modern building to neglect the walls. With us a wall, especially the frame wall, is light in comparison to the old time structure, yet houses have not changed particularly in form.

It is convenient, perhaps, to place a door close to a corner, to cut a large opening without providing a visible beam, or to project a fireplace into a room. Such contrivances make our modern thin walls so obvious that the best imitations fail dismally. One authority argues truly and at some length on the misuse of wall papers, tapestries, and pictures, seeking to show us that the process of imitating wall hangings which were meant for decorative wall deadeners has resulted in messing up all our indoor perspective.

Boiled down, the art is to make the thing follow its intentions. Take the dinky bay window that was so common not long ago. A bay was, once upon a time, a unit of wall measurement, a section of a house. Now we apply it good naturedly to a fat man.

To "see the things as they are" leaves us clear of hypocrisy but rather put out on appearances. Notice the duplex house in Fig. 4. We took the liberty to invert the material order, not that the stuff wouldn't stick to the house frame, but more out of curiosity. Siding implies frame construction, stucco does not. Absence of timbering on the gable ends implies some more. Looks funny, does it not?

The moral is that in designing structure where appearance is concerned, or art, if you want to put it that way, our needs must be first considered, then desires. When these factors are given their just shares, build a house that will cover the first and as many of the second as you can recognize. If you are not sure of introductions through mutual acquaintance better let the desires go or you may hate to meet them on the street. You can get plenty of art in building out of your needs if you give them half a chance.

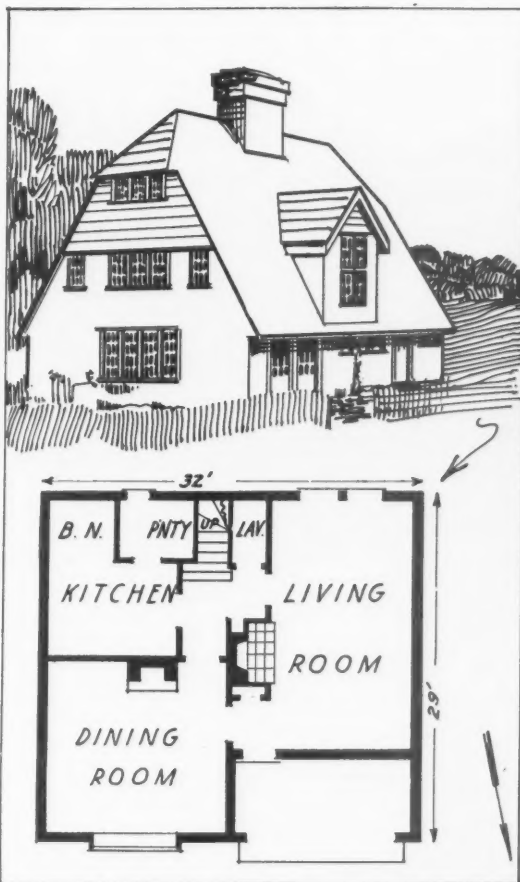


FIG. 1. A SQUARE KENTISH HOUSE.

FIG. 2. THE HIPPED BLOCK WITH BLANKED WALLS

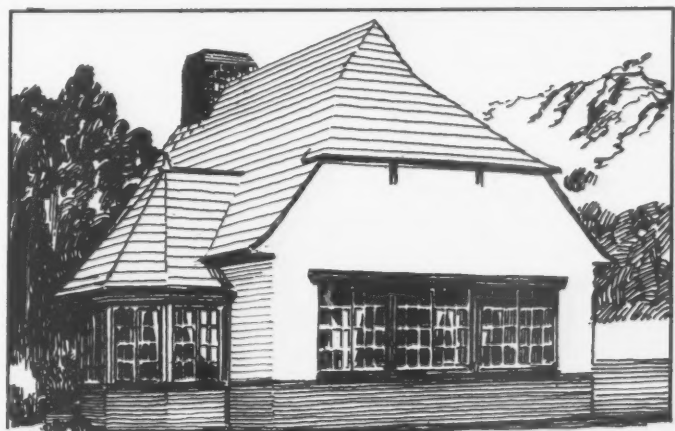
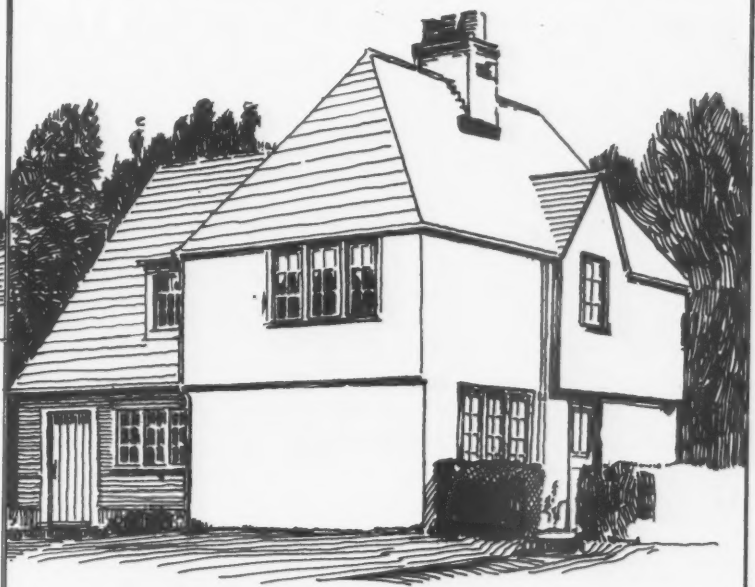


FIG. 3. ROOF AND WALL TO SET OFF WINDOWS AND BAY.

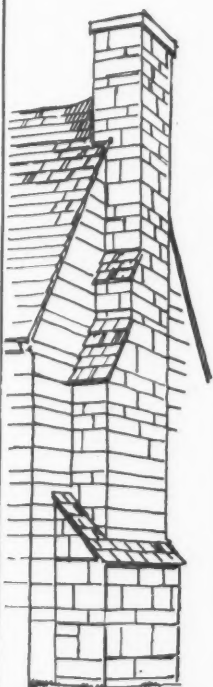
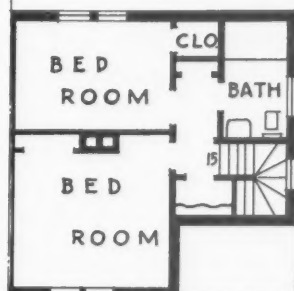
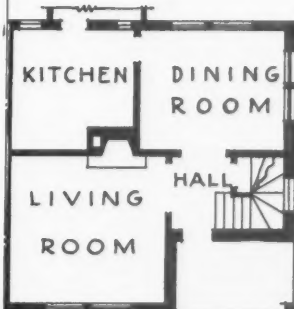


FIG. 5. EVEN IN FORTIFYING MASONRY INTERESTING LINES ARE DEVELOPED.



SECOND FLOOR



FIRST FLOOR



FIG. 4. A DUPLEX WITHOUT ANY APOLOGIES AND OF HOMELY APPEARANCE, BUT WHY DOES THE STUCCO ABOVE THE SIDING LOOK SO "MIXED"?

W. L. Sherman - 12-6-25.



Homes in Colors

The Dealer at Your Service

By WILLIAM A. RADFORD,

President and Editor-in-Chief of the American Builder

EVERY man connected with the building industry is benefited when the people are encouraged to build.

Of course, there are rivalries and perhaps jealousies—all being human—but we like to think of all of the different factors that make up the building industry as pulling together for more and better building. The architect has his work of designing and consulting. The builder has his work of selling the prospect and constructing the building. The building supply dealers carry in stock and furnish to the job the materials as needed. The banker furnishes the working capital. And the skilled craftsmen furnish the necessary labor. Back of all of these are the manufacturers who are serving the building industry.

All of these factors are benefited when homes and other buildings are planned and erected. In general, there is a fine attitude of harmony, mutual respect and good will between all of these building industry men.

For twenty-one years it has been our purpose, through the AMERICAN BUILDER, to bring together all of those interested in building. Among our regular subscribers are numbered the representative men in all of these lines and it is always our endeavor to edit the AMERICAN BUILDER for the best good of all.

The Sixteen Pages of Homes in Colors presented each month in the AMERICAN BUILDER is just a part of the strong home-building booster material which we are putting out, and from which the entire building industry is getting benefit. Many other features in the

AMERICAN BUILDER are equally good; and also we are putting out through the lumber and building material dealers a quantity of booklets, posters, etc., that encourage building and make business.

Go to your lumber dealer and talk over with him what you can do in 1926 in the cause of more and better building in your community. The dealer's office is the natural hub or headquarters for all building information and we suggest to all of our readers that they make use of this center of information and talk over with the dealer any contemplated improvement or building contract.

In some communities the builders and dealers have gotten together in what amounts to an informal club for encouraging home building. A little teamwork and the proper spirit of give and take will accomplish wonders.

1926 looms up ahead like the biggest and best year yet in the building business. The lumber and building material dealer is at the service of the contractors and their clients, and we know that close co-operation will benefit all.

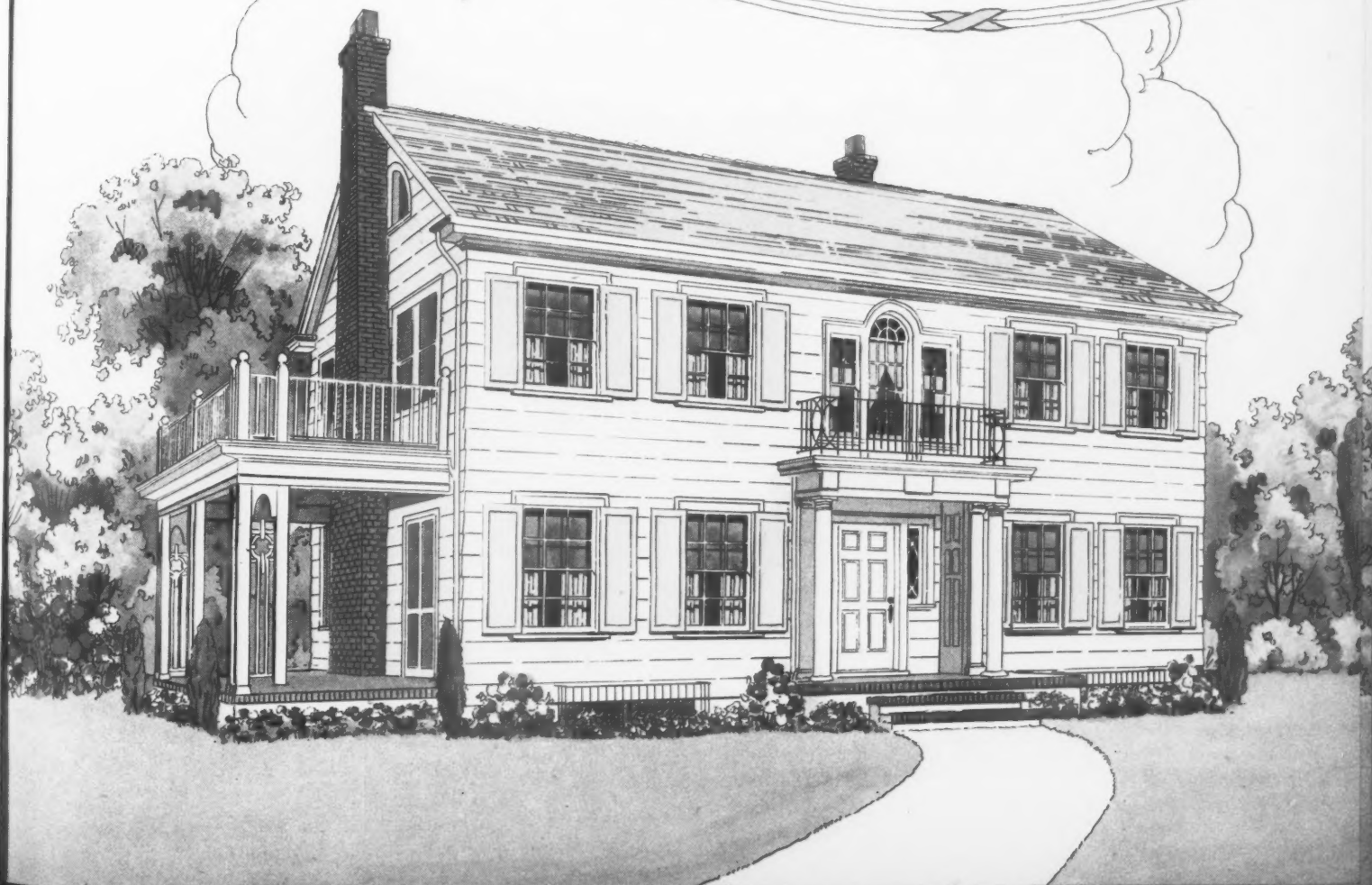
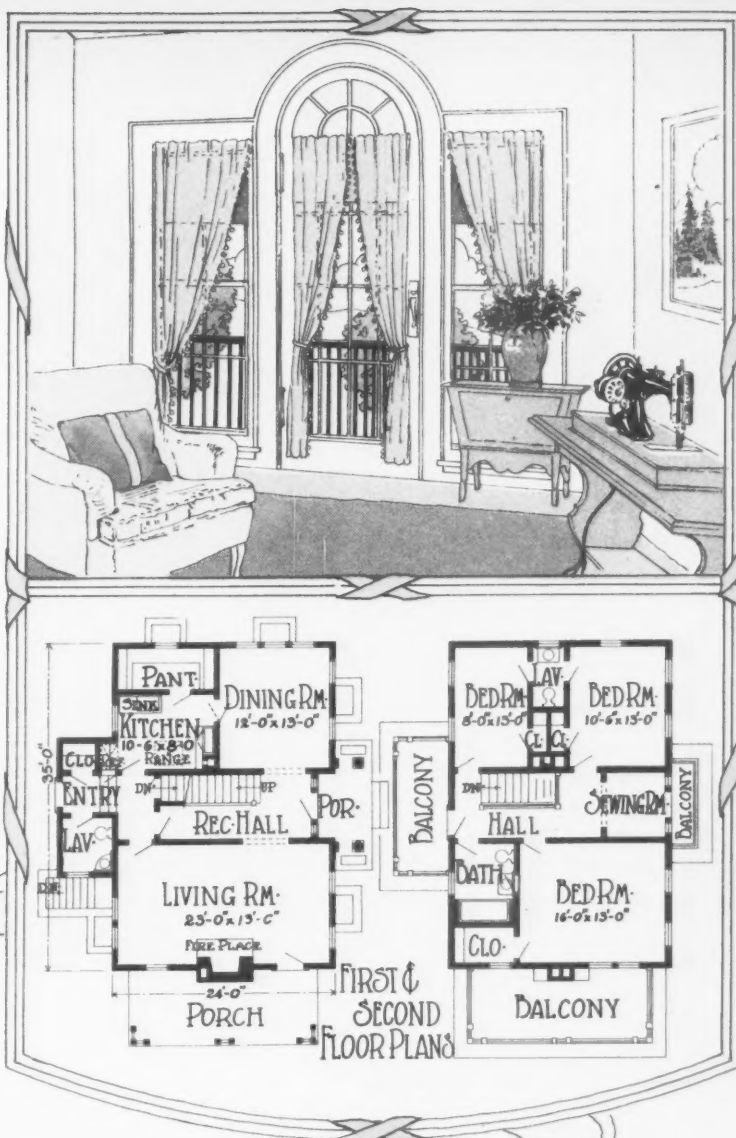
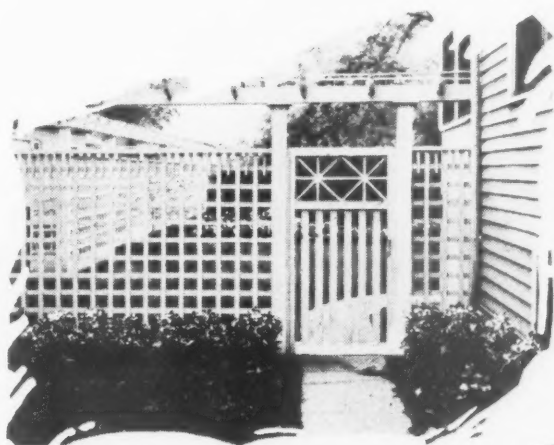


Your Friend, the Dealer, Extends a Hearty Invitation to Call and Talk Things Over.

The PIEDMONT

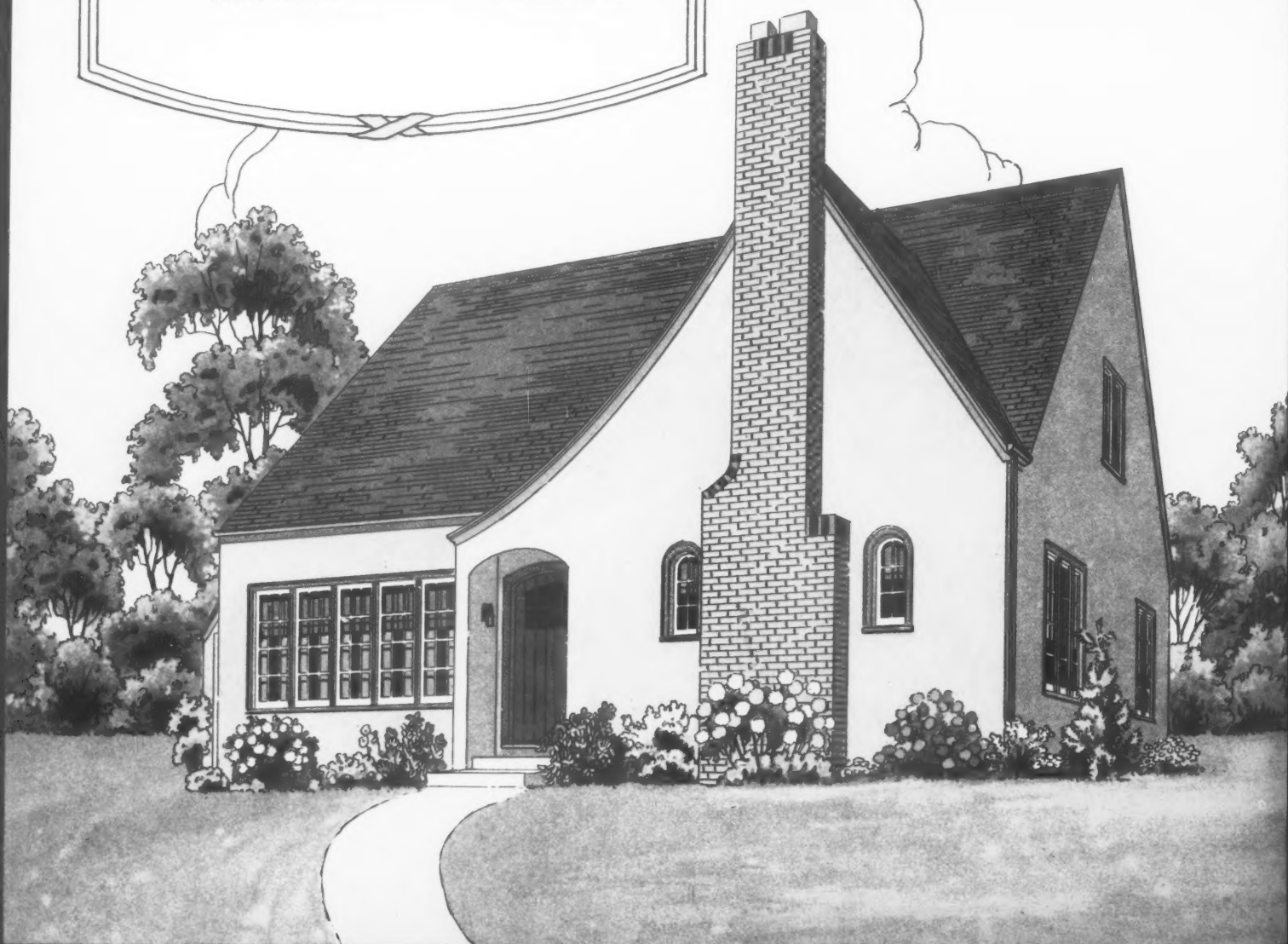
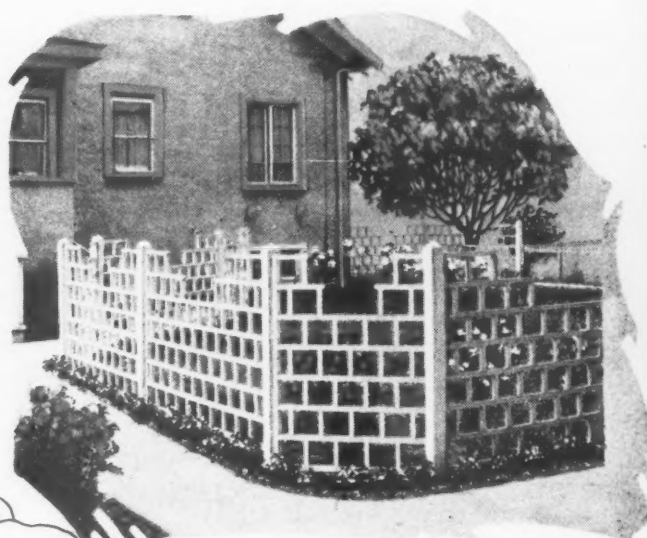
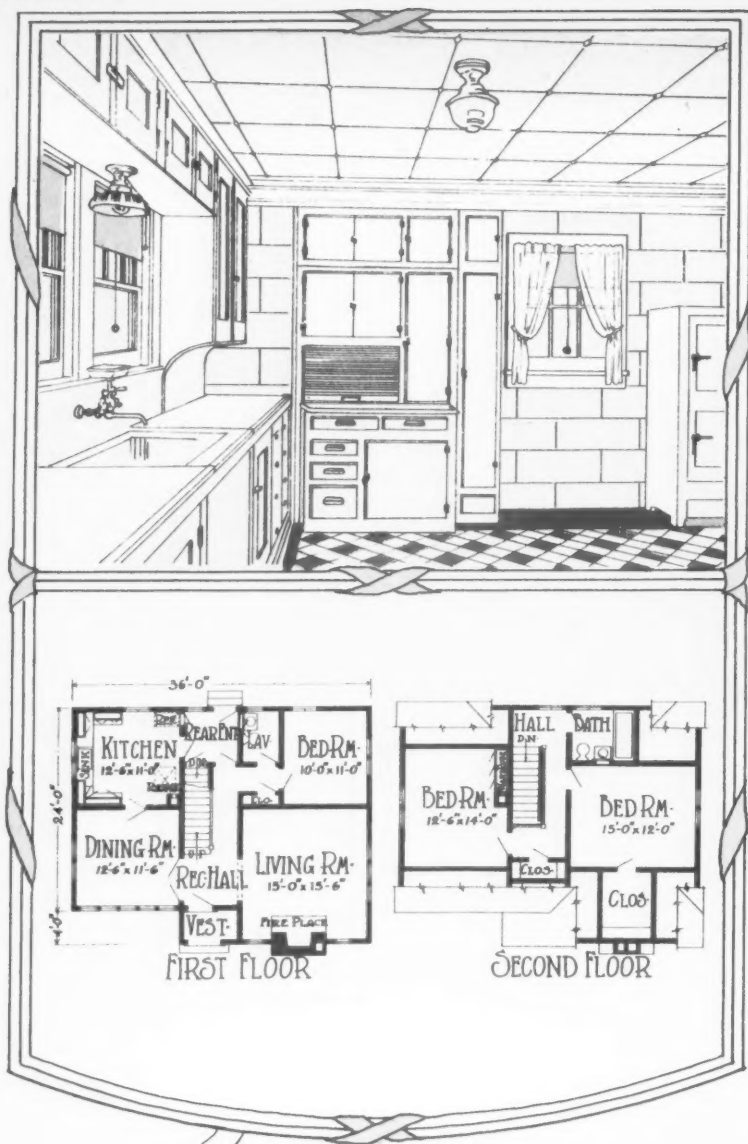
A STRAIGHT gable Colonial design of pure lines and authentic details. The main body of the house is 24x35 feet and contains six principal rooms and bath, besides a sewing room and two additional lavatories. This design is one of the old favorites, always satisfying and always in good taste. Color sketch to right shows the attractive sewing room with glazed door opening onto the balcony.

Copyright, 1925, Wm. A. Radford, Chicago
Pat. March 15, 1921 and Sept. 30, 1924.



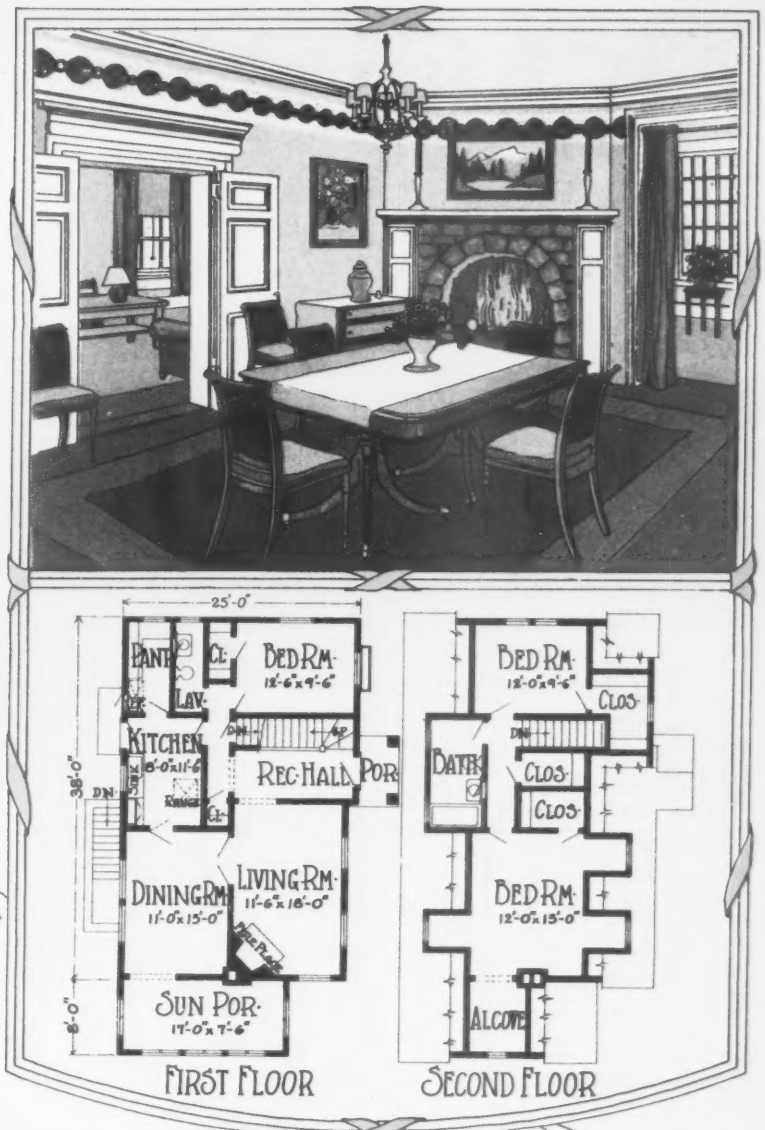
The PINECREST

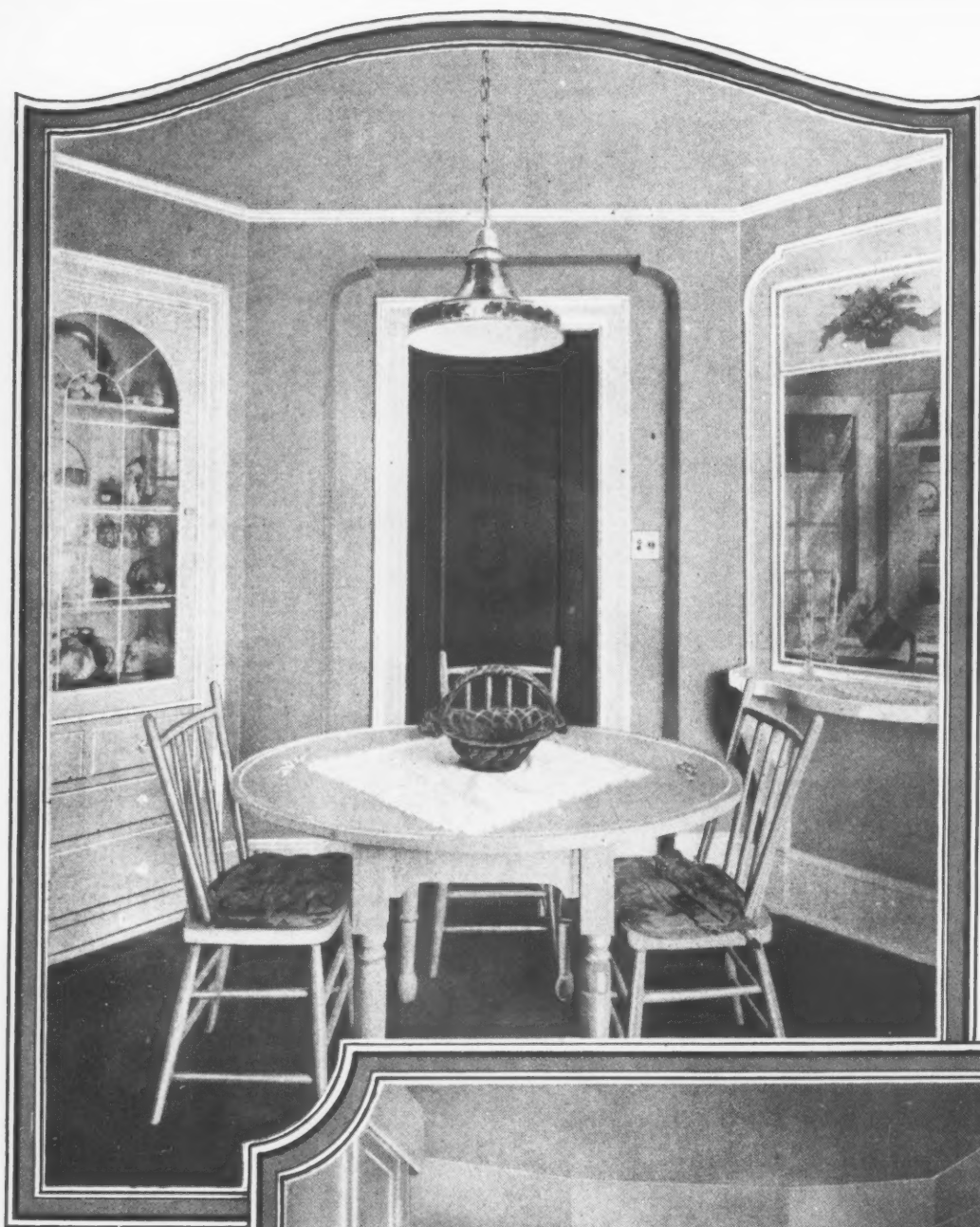
A VERY artistic home of English lines featuring the sharp gables and the long curving roof. The interior of this home makes good the promise of the outside. Six rooms with bath are provided besides the extra lavatory on the first floor convenient to the hall and the downstairs bedroom. Color sketch to left shows the kitchen finished all around, side walls and ceiling, in special glass tiling.



The PLYMOUTH

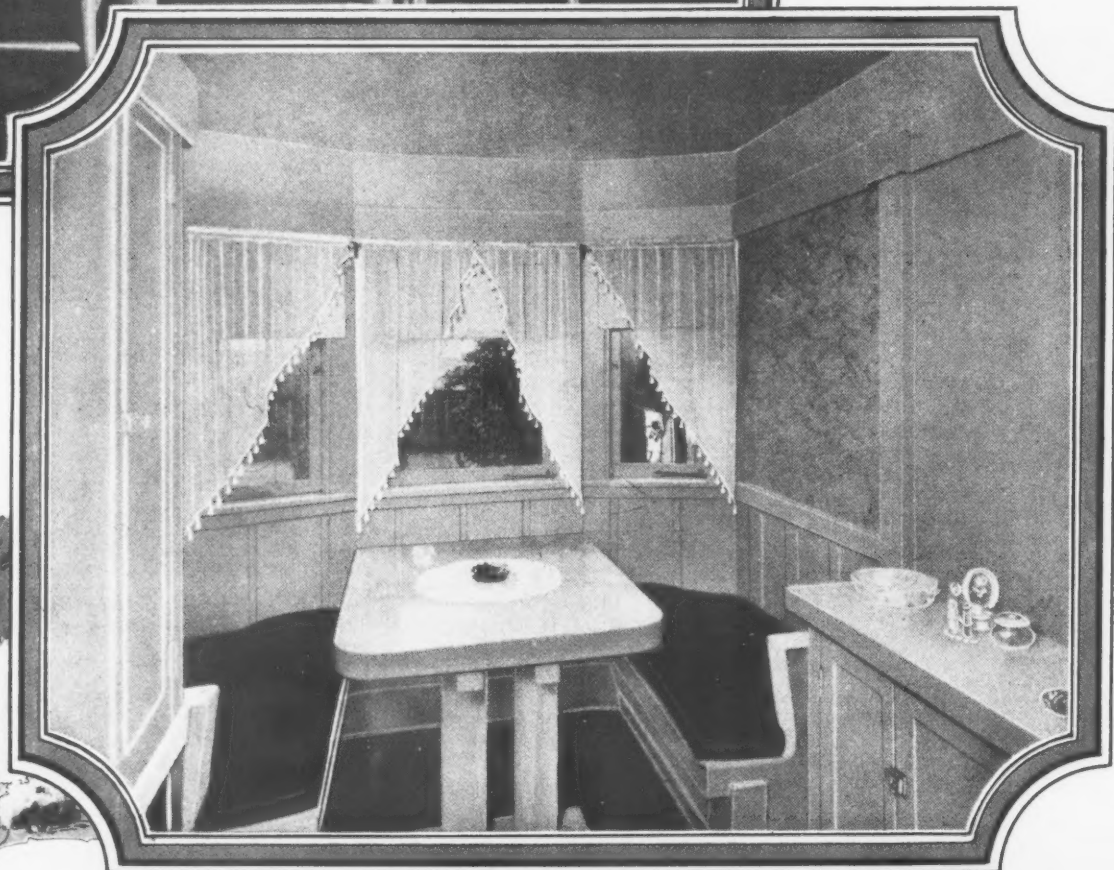
HERE is a delightful Colonial cottage of charming exterior and well arranged plan. A house that is different and one that stimulates interest in living. Study the floor plan for the many interesting features of this arrangement and then notice in the color sketch the suggestion for furnishing and decorating the dining room.

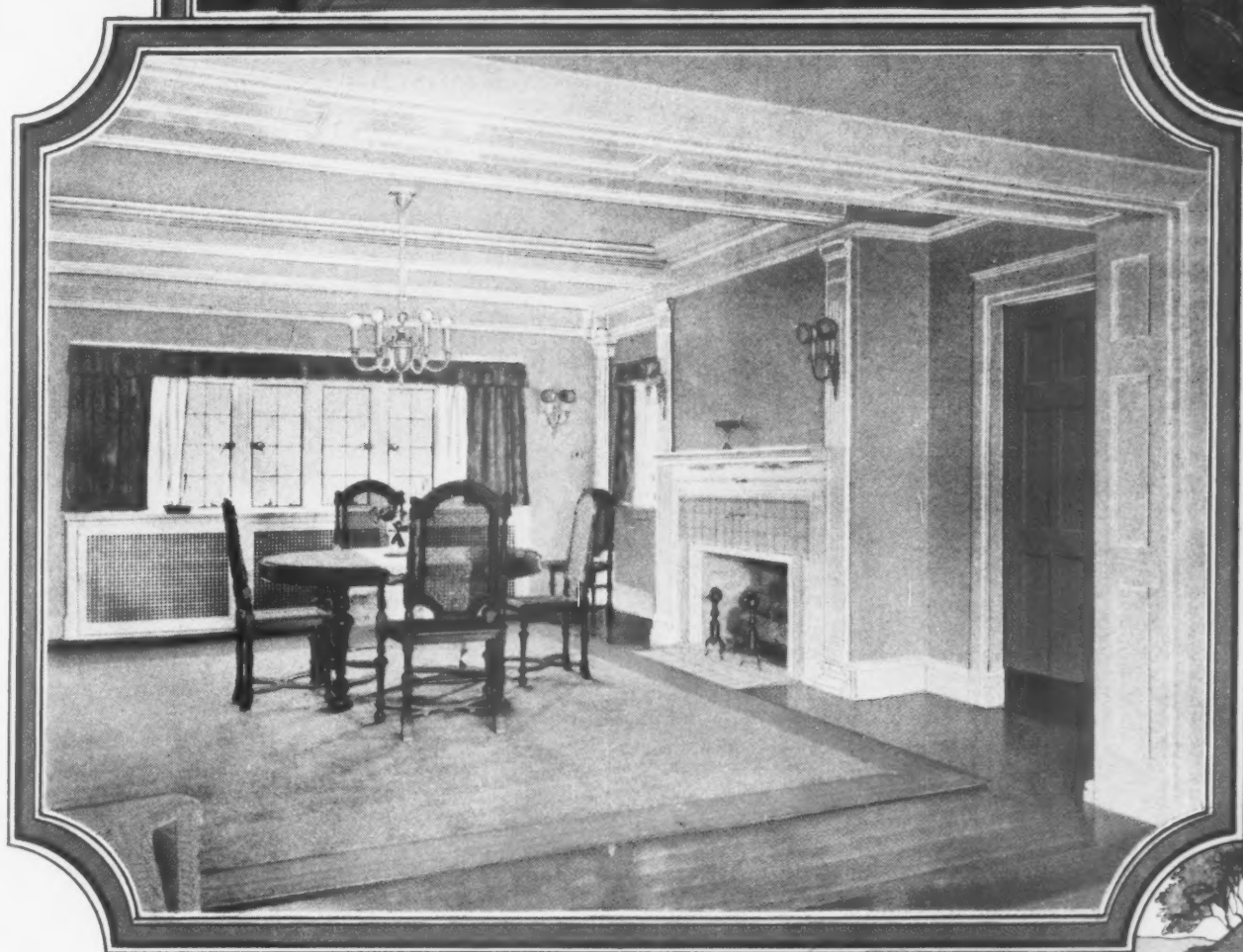




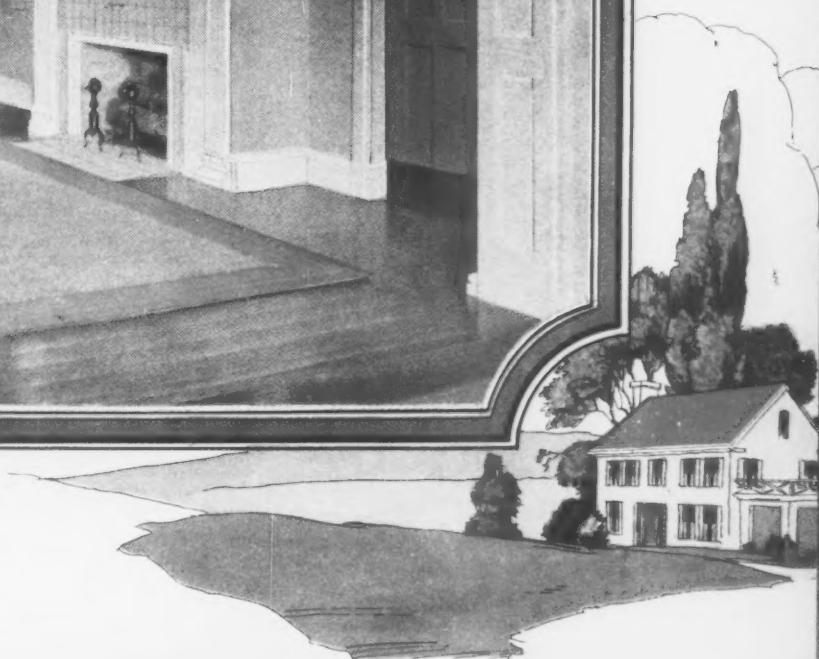
BELOW is a cozy breakfast nook—an idea from California.

AN octagonal breakfast room in a Colorado residence, Wm. W. Stickney, Architect.



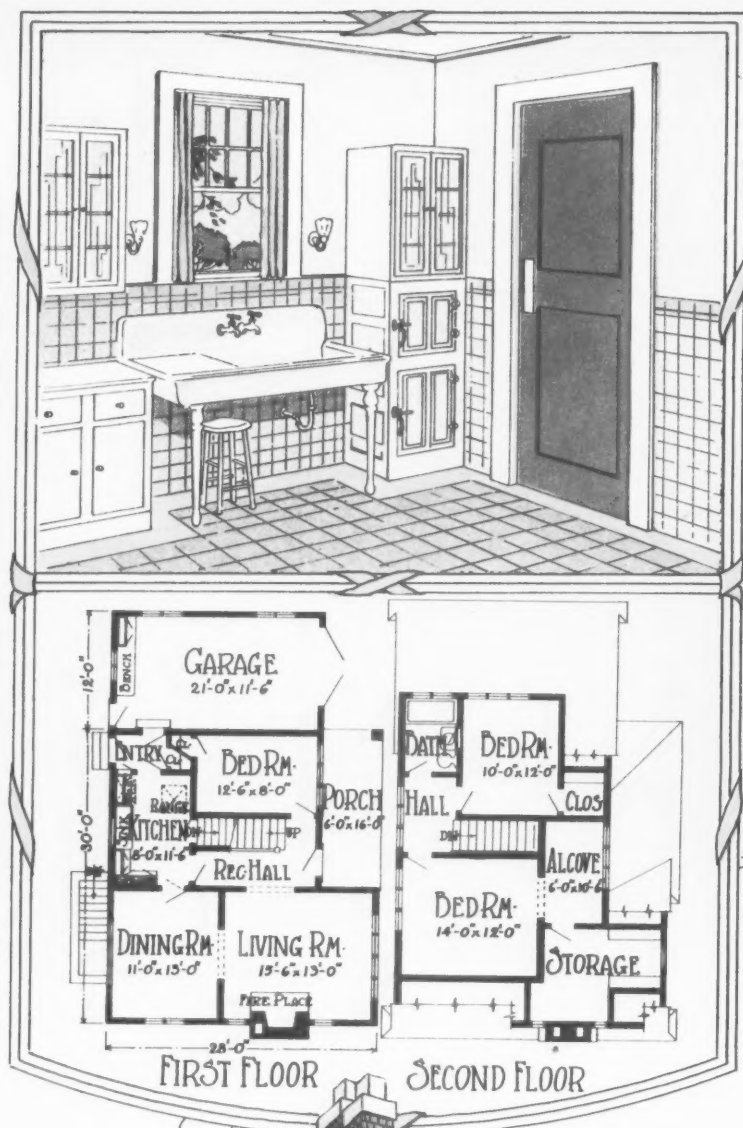


CONTRASTING with the informal and intimate breakfast nooks on the page opposite, here we present two stately dining rooms, the upper in antique Colonial.



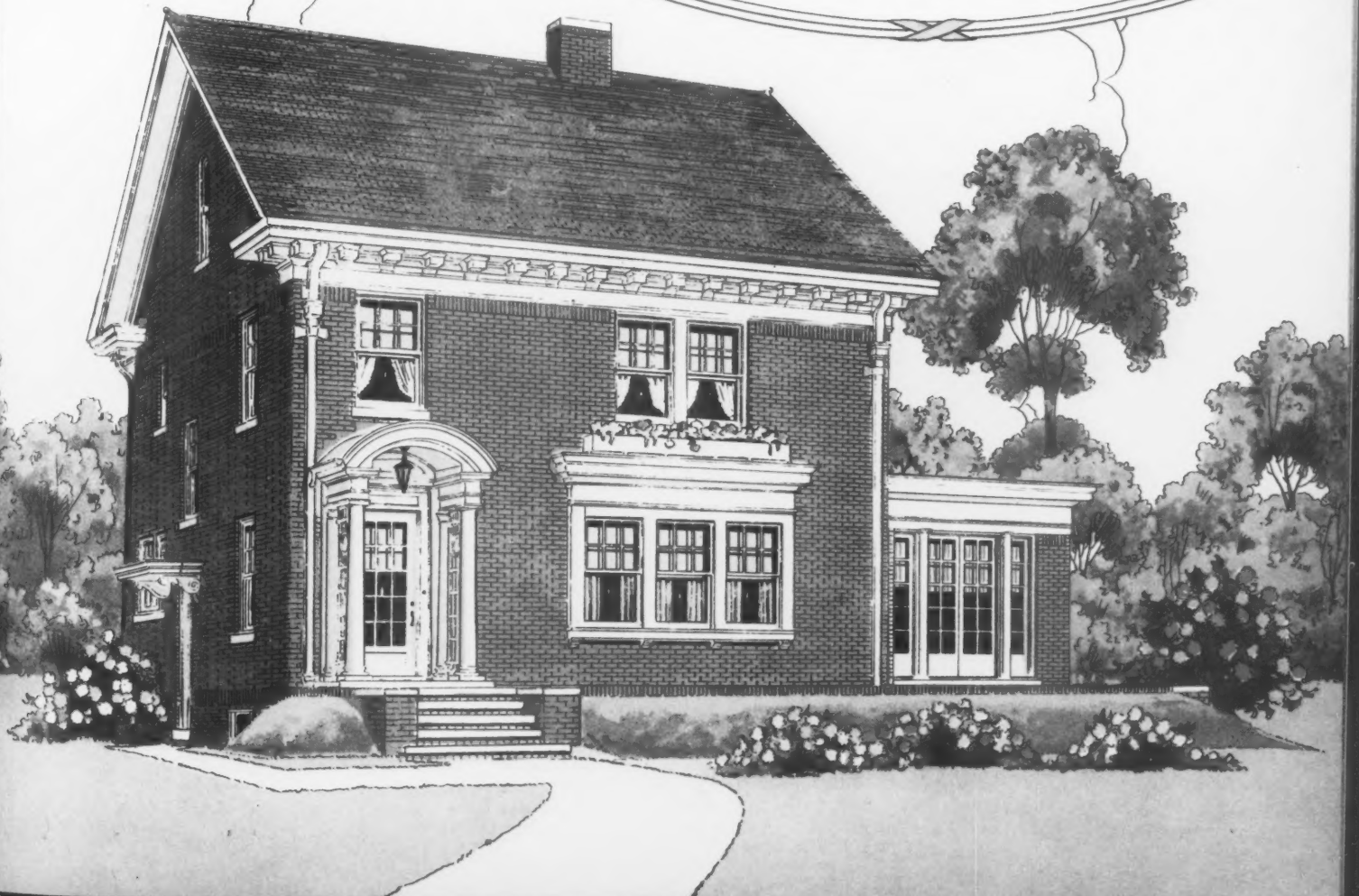
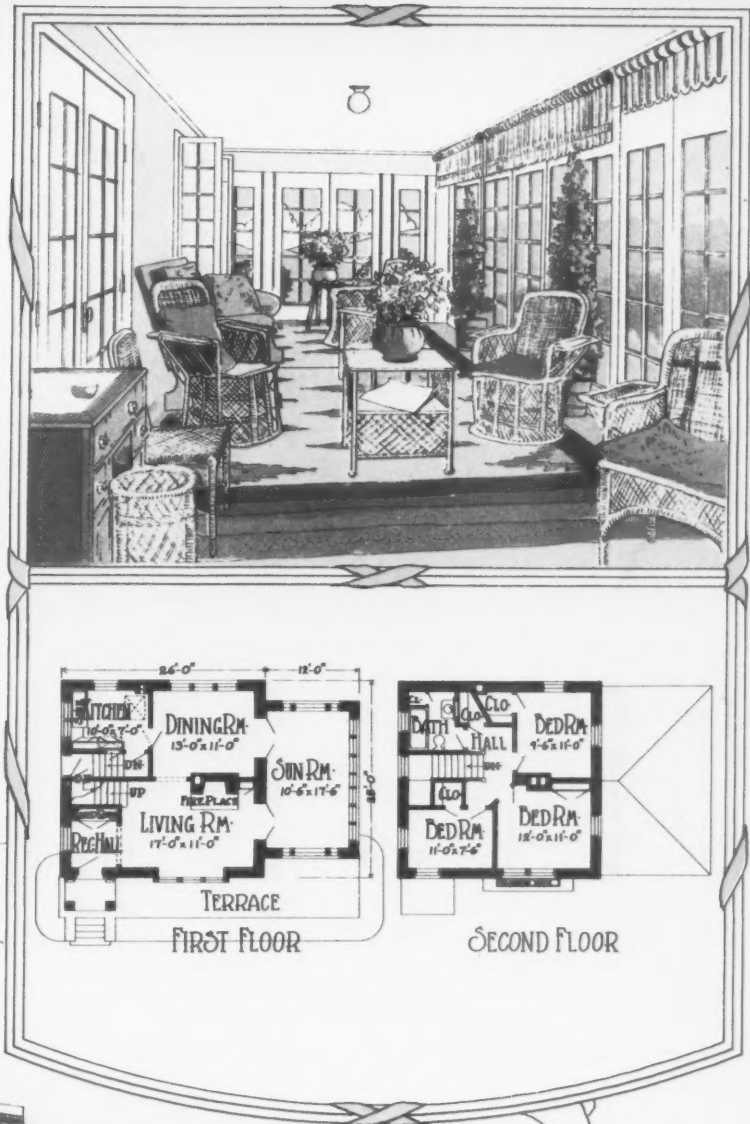
The PETERSBURG

A FRAME cottage with Elizabethan gables in stucco and timber work and with a long, sweeping roof line curving down to cover the attached garage. Four rooms are provided on the lower floor and two big bedrooms and bath upstairs. The window groups in this house are exceptionally good. Color sketch to left shows the tiled kitchen.



The PARKDALE

HERE is a small brick house of Georgian design of exceptionally good details. The main structure is practically square, 25x26 feet and contains six good rooms. The big sunroom addition extends twelve feet farther and is nineteen feet wide, outside. Color sketch to right suggests some interesting furnishings for this beautiful sunroom.





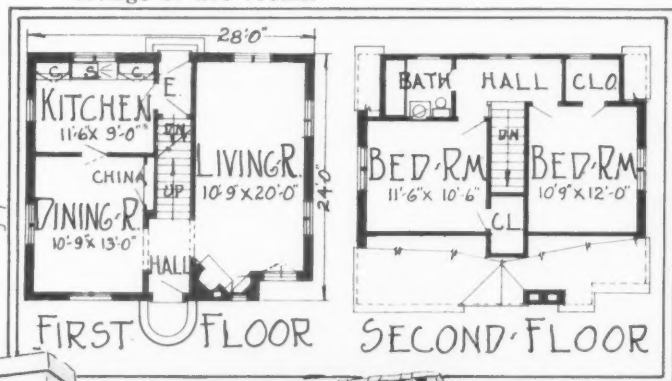
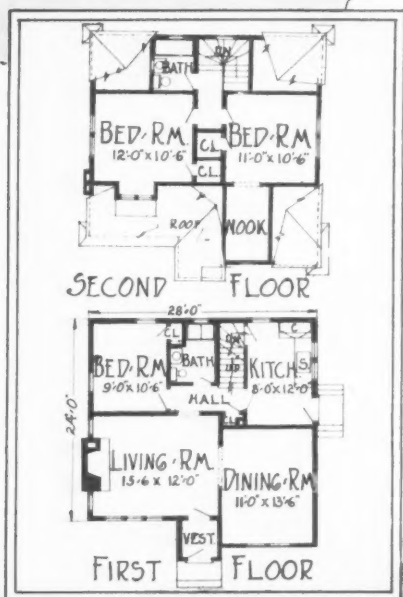
(Below)

The PALERMO

ARCHITECT'S perspective and floor plans directly below show this characterful Spanish cottage of five rooms.

(Above)

The PARADISE
PERSPECTIVE view above and floor plans to left show this artistic six-room home.

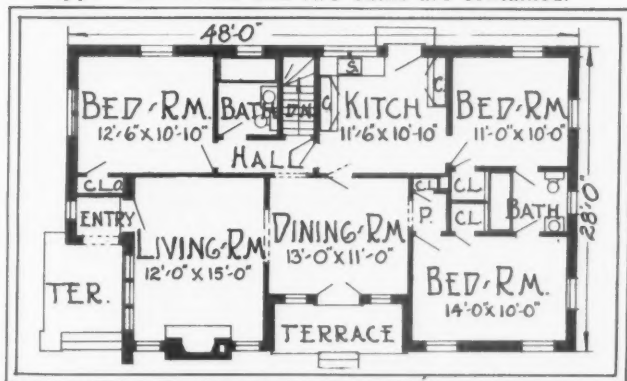




(Below)

The PALMETTO

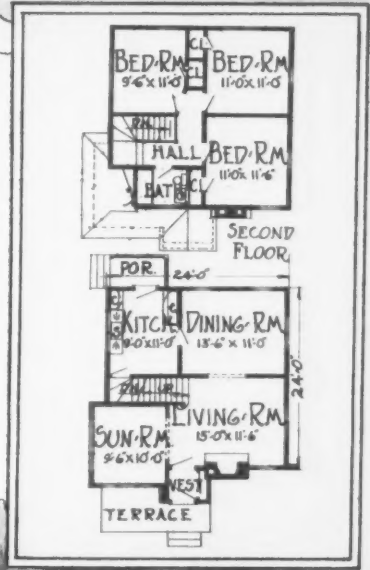
PERSPECTIVE sketch and floor plan directly below present a striking design of Spanish type. Six rooms and two baths are contained.



(Above)

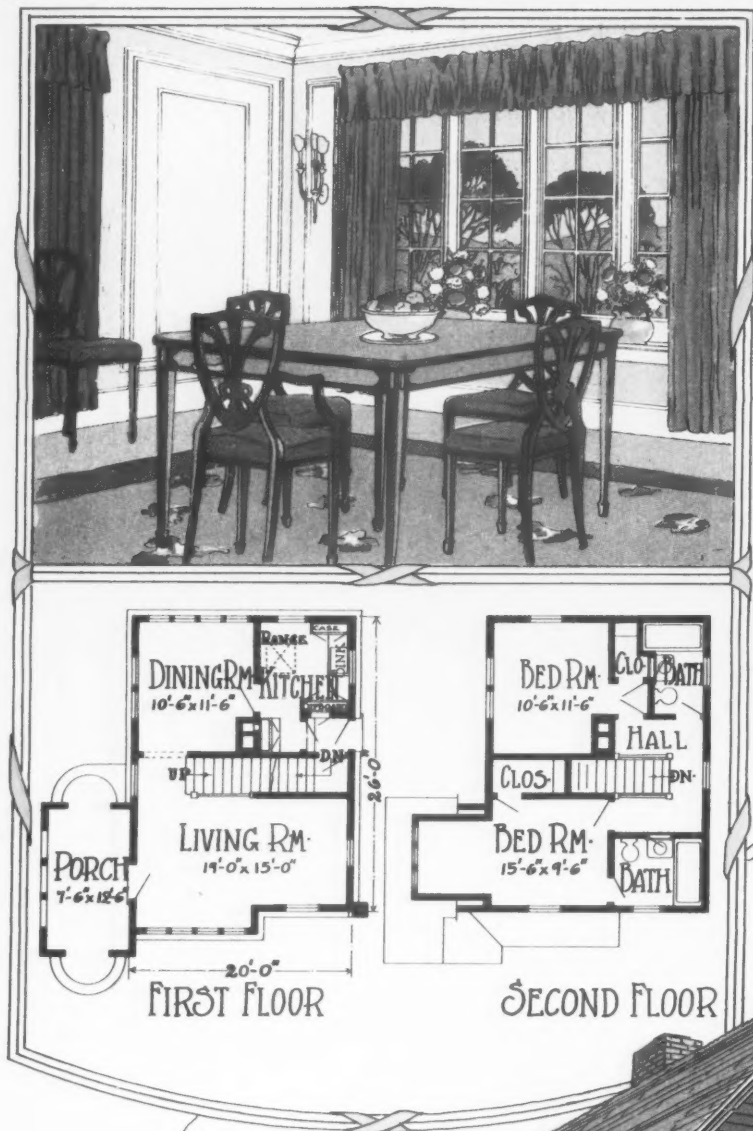
The PAYETTE

THE architect's perspective above and floor plan to the right show an artistic shingled cottage of English lines. Seven rooms are contained in 24x 24 feet.



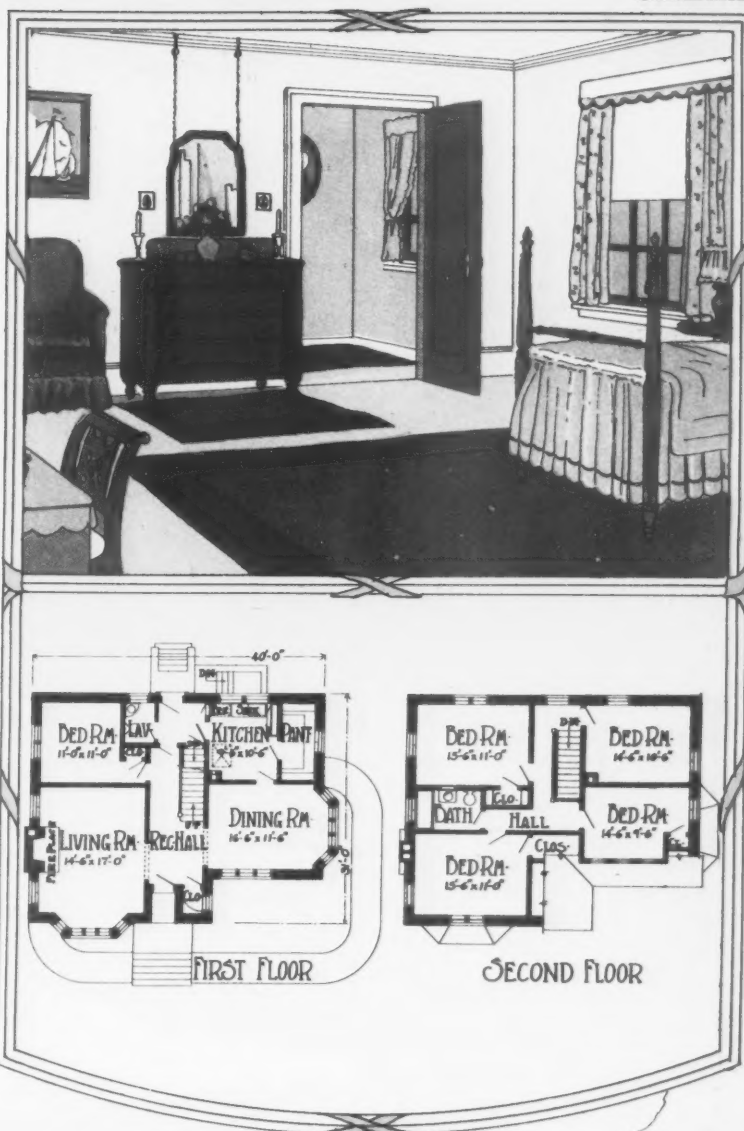
The PELHAM

AN English design, small but very select. A big living room, a very satisfactory dining room and kitchen group and upstairs two fine bedrooms, each with bath—just the home design for the small family of discriminating taste. Color sketch to left shows the dining room furnished.



The PEMBERTON

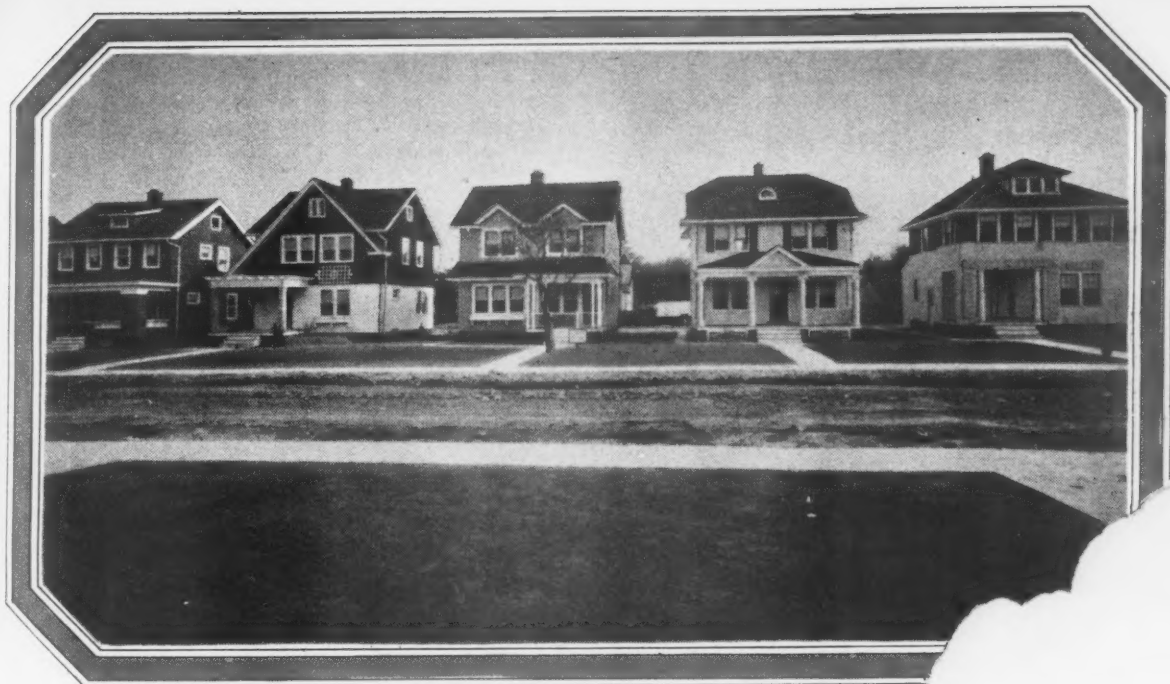
A VERY substantial brick home of eight rooms. Overall dimensions are 40x31 feet. This is a type of home that is very popular in the cities and suburbs. Color sketch to right shows one of the well furnished bedrooms.



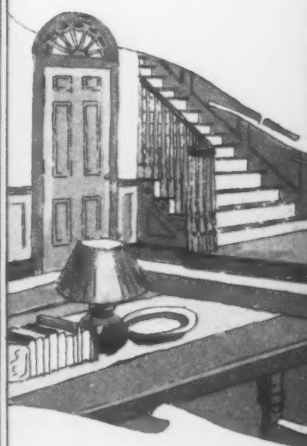


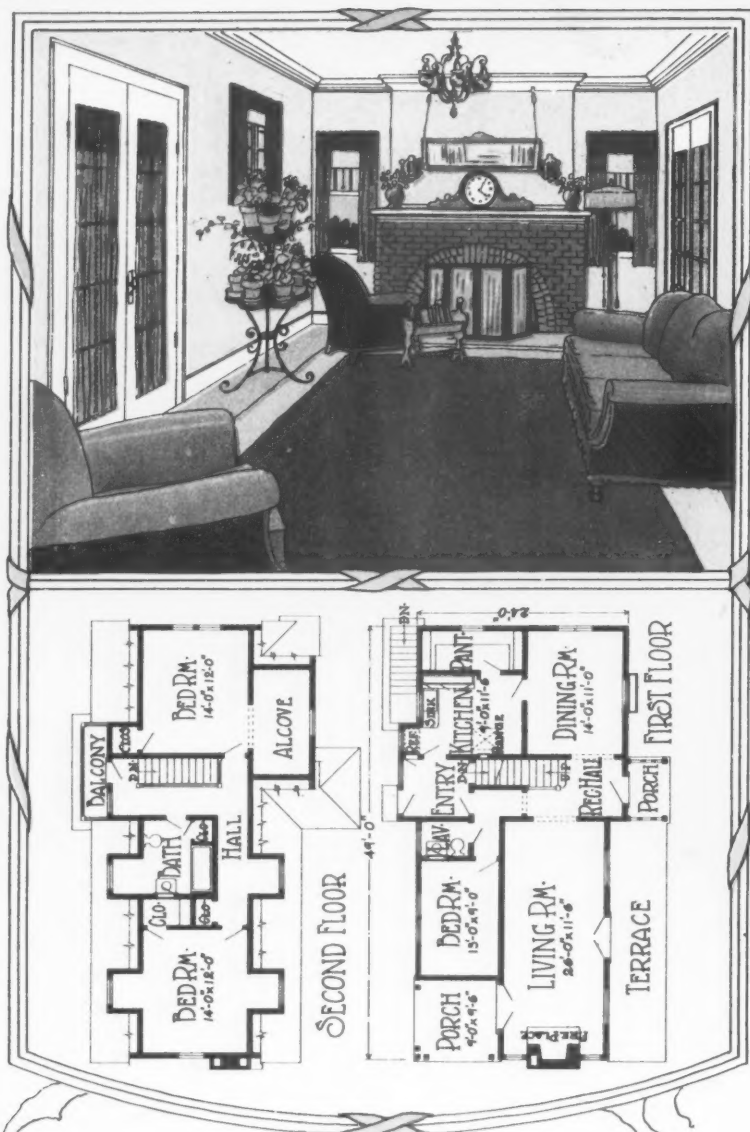
POPULAR homes grace the streets of many new subdivisions and residential suburbs. A variety of designs are employed to avoid sameness and monotony. Speculative or investment builders have learned that there is a large and growing





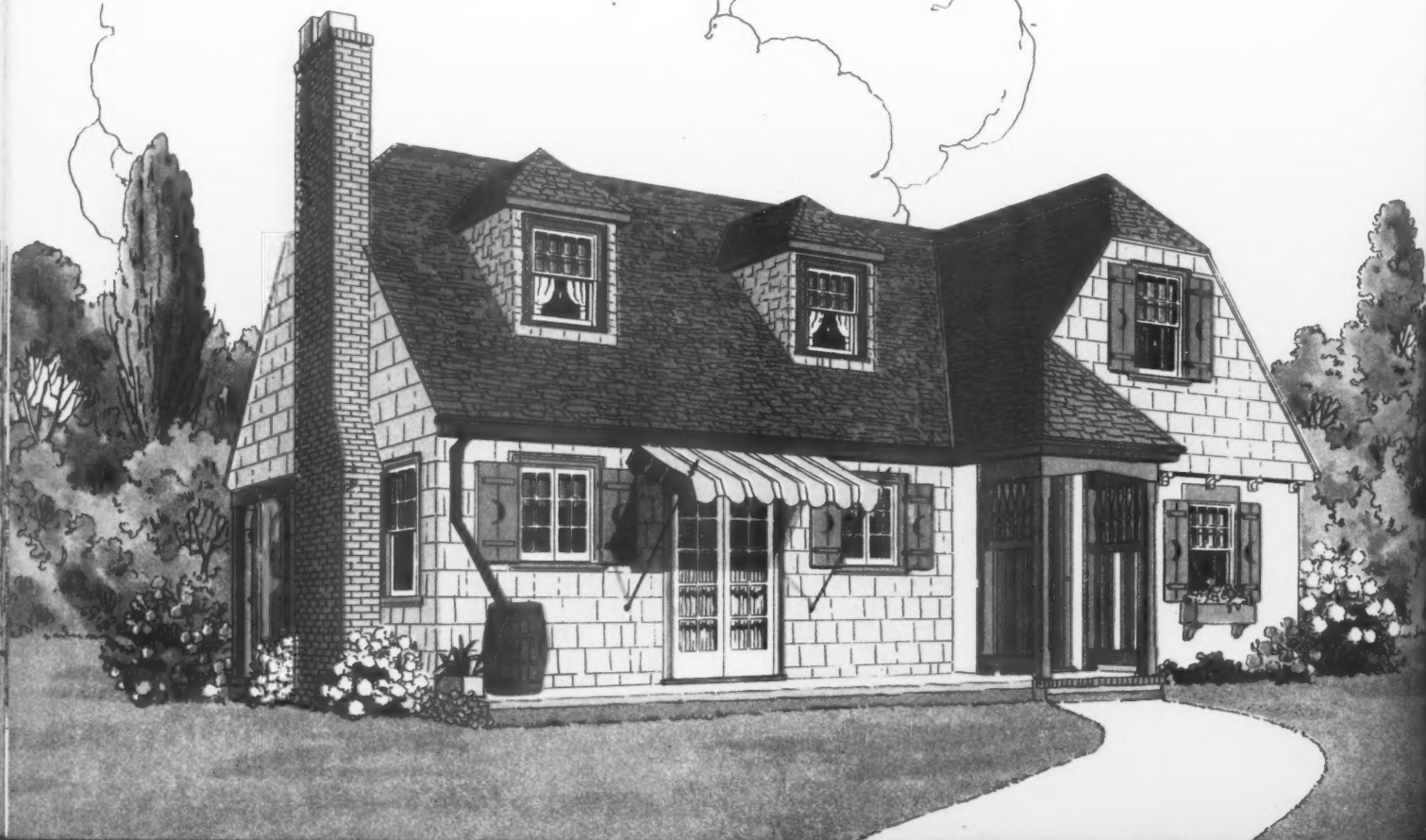
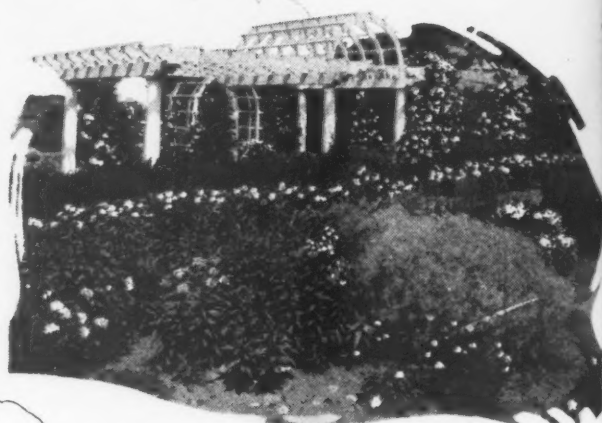
market for quality homes of moderate size. The photographs on this page and the page opposite contain many a good idea which can be profitably followed by home builders everywhere and by those laying out residential streets in new subdivisions.





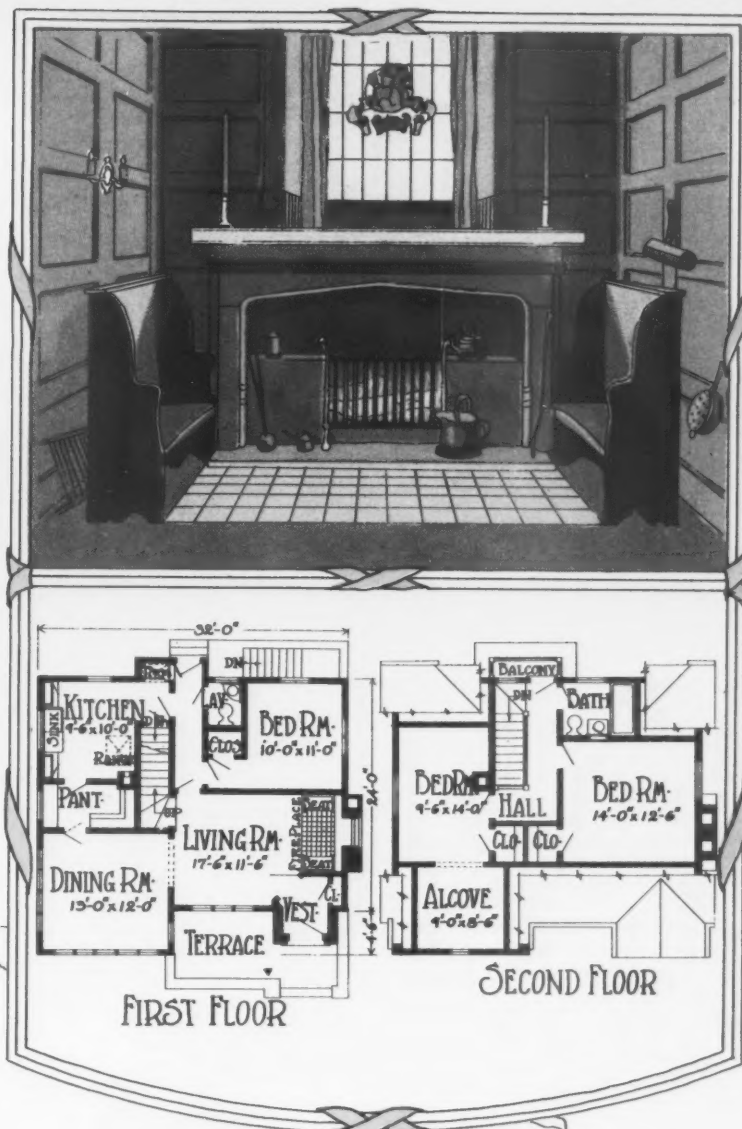
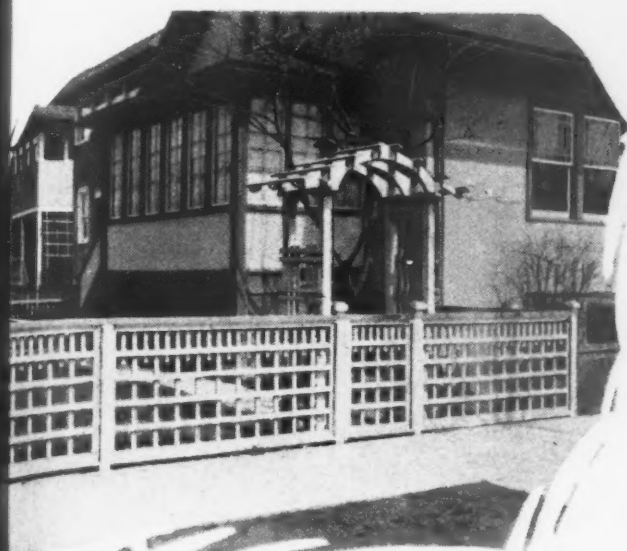
The PAISLEY

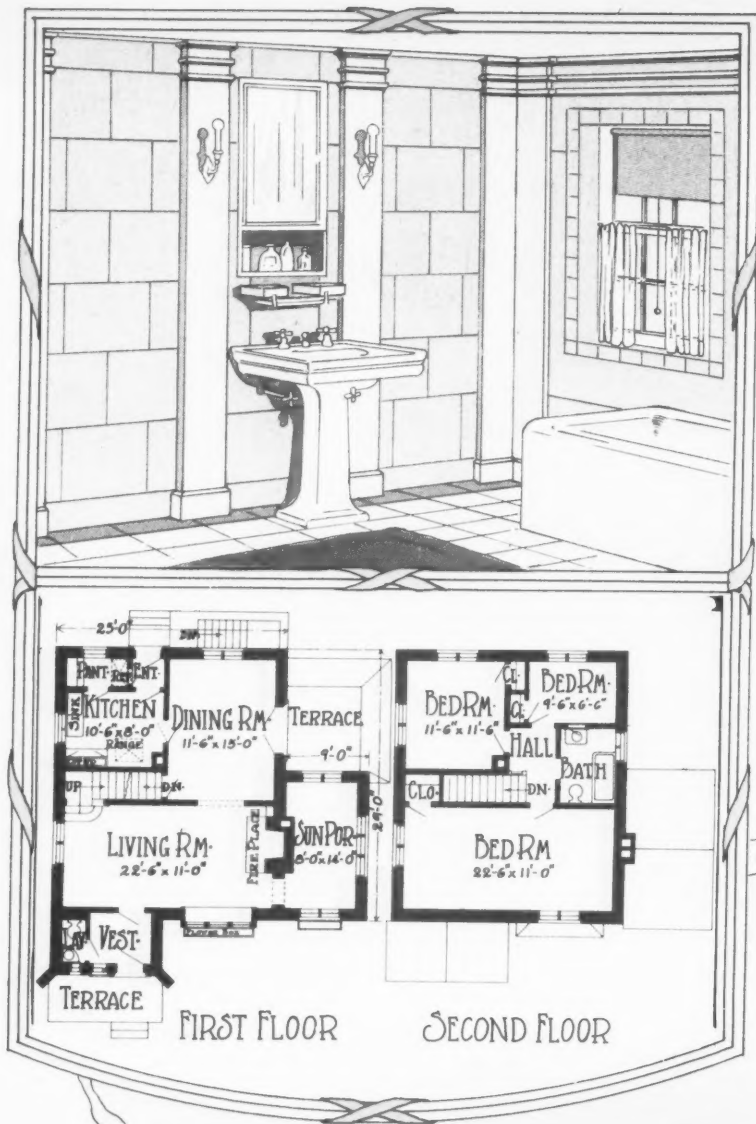
A CHARMING art atmosphere has been achieved in this English cottage design by emphasizing some details typical of the early days, for instance the rugged shingle roof, the primitive board shutters, the projecting beam ends, the hewn timbers of the porch and the rain water barrel. The arrangement of rooms in this home is quite as interesting as the charming outer appearance. Color sketch to left suggests proper furnishings for the living room.



The PLAINFIELD

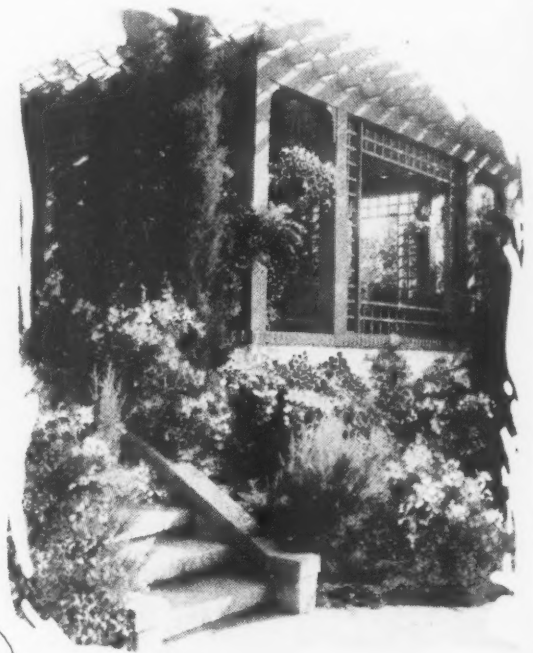
AN English Tudor home in stucco and brick with garage to match. Dimensions on the ground are only 28x30 feet though the house looks larger. Six fine rooms are contained. Color sketch to right shows the interesting fireplace with built-in seats and panelling which is the feature of the living room.



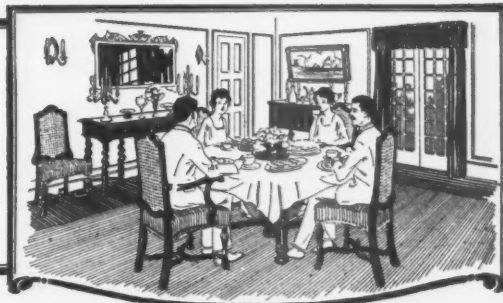


The PALMDALE

HERE is a rugged English design in stucco, brick and half-timber that is decidedly different. The main house is 25x29 feet with sun porch and vestibule projecting. Seven very beautiful rooms are shown in the plan. Color sketch to left shows the bathroom tiled to the ceiling with special glass slabs.



OUR FRONT COVER HOME



An Air of Quiet Seclusion Pervades the House and Surroundings of the Charming Home Pictured Here

NESTLING among fine old trees and beautiful shrubbery, and with its main entrance removed to one side where it is shielded by a low walled terrace, our Front Cover Home carries an air of quiet seclusion which will appeal to many prospective home builders. An added touch of oldworldiness appears in the stepping stone walk, between the broad flag stones of which grass has grown up to produce a charmingly quaint effect. But, in spite of the withdrawn air which surrounds this home, it is far from uninviting and gives one the feeling that here he may find an old-fashioned hospitality and the cosy comfort of the true home.

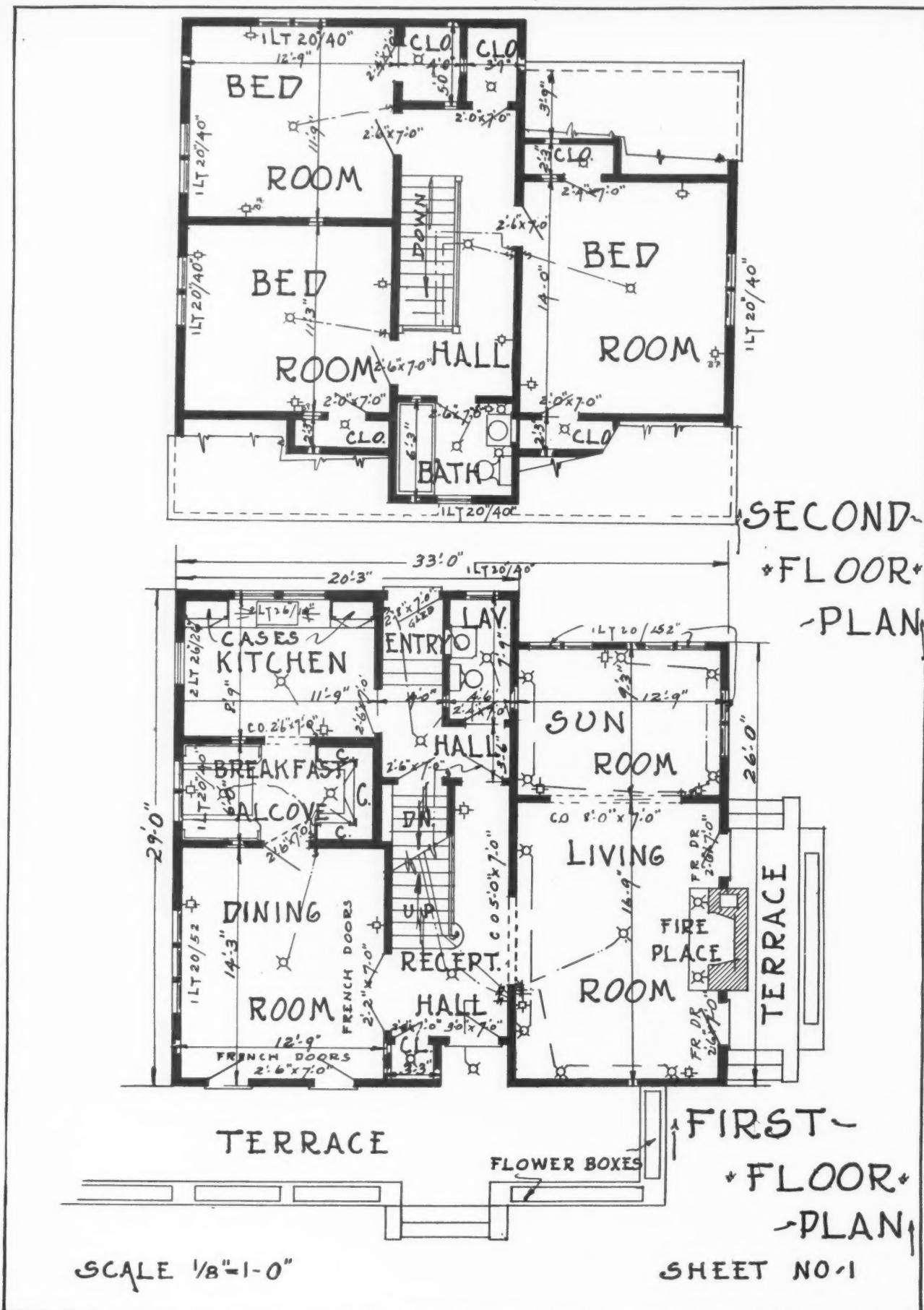
The recessed entrance admits one to an interior which carries out the impression already gained. Just within the door there is a reception hall with a coat closet and a stair-

way leading to the second floor. At the far end of this hall there is a convenient first floor lavatory, the rear entry and the basement stairs. At one side of the entrance a wide arched door opens into the living room which, together with the sun parlor occupies this entire side of the house. The generous lighting of these rooms is at once noticeable and the windows at either side of the fireplace afford a refreshing view of the terrace with its profusion of flowers.

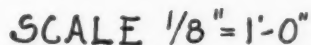
On the opposite side of the house is the dining room with a breakfast alcove nicely separating it from the kitchen at the rear. On the floor above are the sleeping quarters. Here one large bedroom occupies the whole side of the house above the living room while on the other side, separated by a central hall, there are two smaller bedrooms.



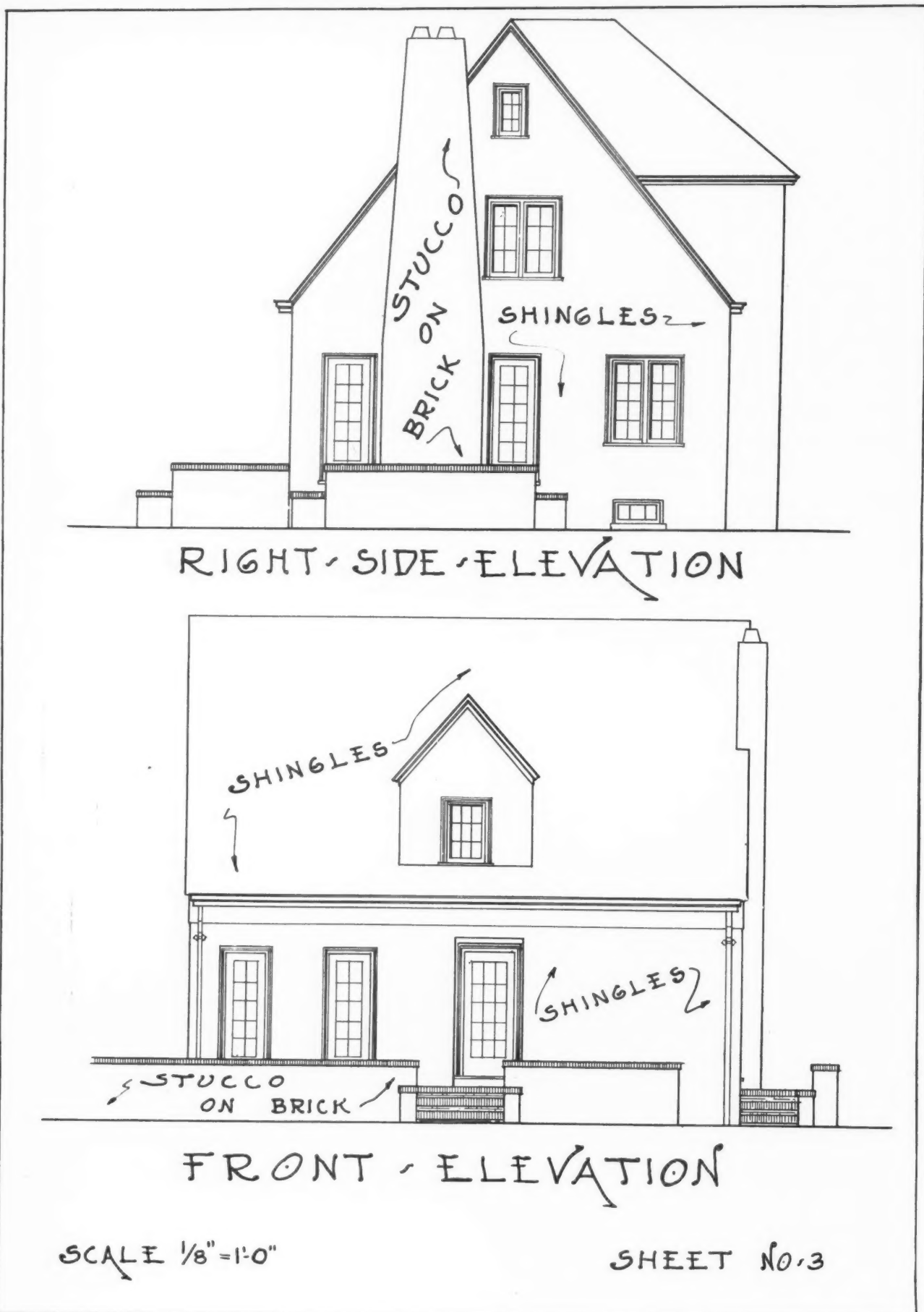
Not Least Among the Charms of Our Front Cover Home Is the Surrounding Grounds and Here the Beauty of Simple Design Has Been Enhanced and Rounded Out by the Selection of an Appropriate Site and the Skill of the Landscape Architect. On the succeeding pages the plans and details of this house will be found.



The First and Second Floor Plans of Our Front Cover Home Show a Compact and Attractive Arrangement of All the Essential Rooms with Such Points as the Separation of Kitchen and Living Rooms Well Taken Care of.



Passing to the Basement Plan of Our Front Cover Home We Find the Working Portions Equally Well Considered. At the top of this page are detail sketches of the cornice and wall section while on the two pages which follow will be found the elevation drawings.



Front and Right Side Elevations of Our Front Cover Home Show the Design of the Low Walled Terrace and the Stucco Chimney. Opposite these are more elevation drawings.



LEFT - SIDE - ELEVATION



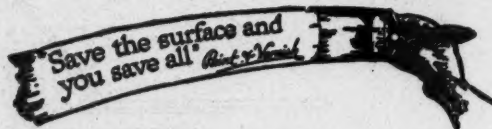
REAR - ELEVATION

SCALE $\frac{1}{8}$ " = 1'-0"

SHEET NO. 4

The Rear and Left Side Elevations of Our Front Cover Home Are More Simple but Show a Number of Interesting Points of Window Treatment and the Placing of the Rear Entrance.

SAVE THE SURFACE DEPARTMENT



Written, Illustrated and Edited by the Headquarters
Staff, SAVE THE SURFACE CAMPAIGN

Individuality of Color Scheme Often Sells a House

REAL estate developments are arising like mushrooms, not only in Florida but in other sections of the country as well. Besides, there is an increasing interest in homes and an almost universal desire among average people to own their own homes. Despite all this, however, a builder sometimes strikes a snag when it comes to selling. For some unknown reason his houses sell hard. Here is a true story of selling difficulties and how they were overcome. The means used by these men may prove equally valuable to others.

Some time ago two real estate developments were started on Long Island by two rival promoters. They were located on opposite sides of the highway. The land was bare and flat, but near New York and with excellent transportation facilities.

Some forty or fifty houses were erected in each of the two developments. The houses were frame, built in symmetrical rows without architectural pretensions, and the painting schemes were very uninteresting—stereotyped

white, buff, green and red combinations. As in many speculative houses, paint had been used sparingly, stingily even. Since the building costs were high the painting costs were reduced to a minimum.

Thousands of motorists passed over the highway, most of them people of moderate means. Hundreds of them did not own their own homes, and, without a doubt, many took their little Sunday trips with an idea of scouting for a home. Few, however, were tempted to examine the rows of houses. Without trees and shrubbery the rows of bare, uniform, flimsy looking houses loomed up on the flat country like barracks or institutional buildings. Regardless of the structure, the skimpiness of the paint finish made them look cheap.

The houses did not sell, and soon the promoters forgot about them and turned their efforts elsewhere. No one, not even a promoter, can thrive on inactivity.

An enterprising painting contractor was motoring through Long Island one Sunday afternoon and came upon these



Comfortable Little Homes Like This One Can Be Made Distinctive with Color. It will be noticed in the picture that the trim and roof of the next house are of a different color.

two practically deserted villages. He looked them over, took down the name of one of the construction companies and the following day made a proposition to the company, in a few months' time, put profits instead of liabilities, on the ledger.

The painter called attention to the unhomelike and uninviting appearance of the houses. He offered to repaint them, street by street, at his own expense, demanding only a small percentage of the sales price when sales were consummated.

Very soon the real estate development on one side of the highway was completely changed in appearance. An individual color scheme was selected for each house on the block. All of the color schemes, however, were blended pleasantly into one another.

While some of the color schemes were conservative, designed to please the taste of conservative people, they were thrown into relief by the more radical, yet equally harmonious color arrangements. This painter knew color. He knew that plain white with green trim is attractive for one house, but becomes monotonous when repeated too often. He also knew how important a part color plays in the sale of a house. His courage and imagination were rewarded because the real estate development which he had transformed gradually began to attract visitors from the highway. One by one "sold" signs appeared in the windows along this row.

With over ninety-six colors available, novel color schemes need not be difficult to achieve. Apparently this is an age in which individuality and distinction are at a premium and command the asking price.

Instead of white or Colonial yellow, coffee, gray, green, fawn, apricot and lavender gray might be used. Trim of apple green, robin's egg blue, terra cotta and bright Cobalt blue is attractive. Even the roof may be treated as part of the trim, or given a contrasting color, such as purple, black, blue, or unusual shades of red and green. The chimney may be painted, too, to match the trim, with happy results. Few women can resist an orange chimney pot gracing a roof of blue-green.

Here is a striking color scheme that has worked out for a stucco house that has since become one of the show places of its town. The body of the house was tinted a soft Italian pink. The trim was painted a deep robin's egg blue and the roof stained a medium golden brown. The color scheme suits the type of architecture and the materials in which it was conceived.

It is encouraging to see here and there throughout the country, new houses fearlessly decorated in unusual color schemes. It is no uncertain guess to say that these houses indicate what will happen to our domestic architecture within the next decade or two. People are becoming tired of the same old color schemes, as the incident of the Long Island development illustrates.

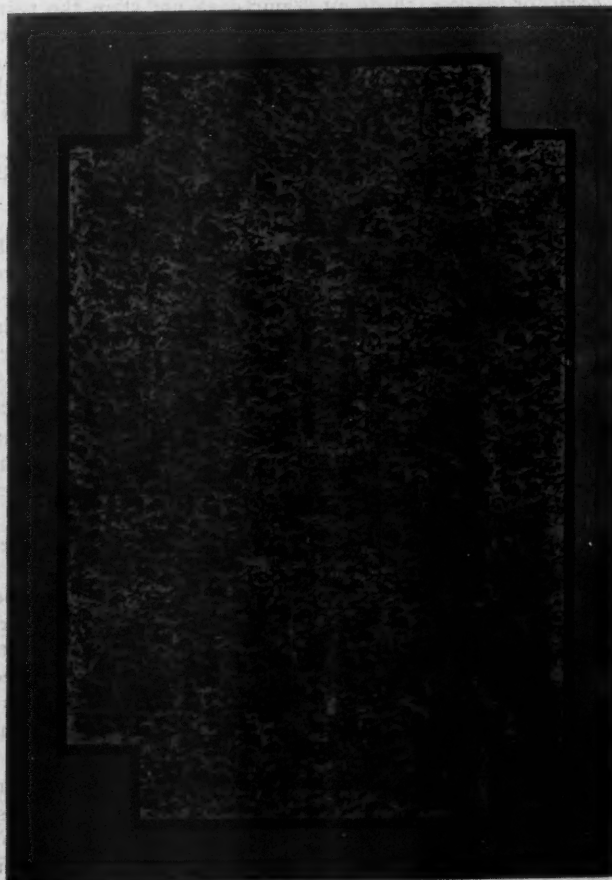
Mottled and Sponge Finishes

Wall Treatment That Never Grows Tiresome

FOR many rooms the simplicity of a plain wall treatment is desirable, but there are others where a play of color, or a suggestion of a pattern are more appropriate. In selecting wall finishes the architectural features of the rooms in question must be considered. In general, rooms whose wall areas are broken by dormers, bays or alcoves require a plain wall finish, while those having large areas of unbroken wall respond nicely to a variegated color treatment. Much depends upon the lighting and character of the room so that no ultimatum can be issued on the subject.

Not many years ago a painted wall meant a plain wall to the uninitiated, but now, since painters have made so many innovations in their decorative techniques, a painted wall means anything from one with a rhythmic but flexible pattern to one with a formal pattern.

Paint has become one of the most versatile decorative mediums. Its flexibility of color and mobility of design adapts it to modern ideas of individuality and plasticity in decoration.



A Sponge Finish Is Often Used Within a Panel Area. It makes a very striking all-over finish, too, especially when two or three colors are used.

One of the most popular finishes is the crumpled wall effect that is both interesting and dignified. It gives a soft, feathery design that is charming and original and is extremely simple, both as to effect and method.

It is produced in the following way: After the color scheme is selected a ground coat of the main color is put on the walls and allowed to dry. Then the contrasting color is applied. Before this dries it is gone over with a crumpled newspaper or a wad of tissue paper. The paper is placed firmly on the wet finishing coat. It is rolled downward with the fingers. In this way the wadded paper lifts off some of the finishing coat and the ground coat shows through.

Variations in the feathery "design" result from the different types of paper that is wadded and used as a wipe. Crumpled newspaper gives a mediumly prominent pattern; loosely crumpled newspaper or wrapping paper gives widely spaced figures while tightly crumpled newspaper or tissue paper gives smaller, finer figures.

Of course much depends upon the color schemes selected. A good plan is to combine harmonizing colors, or two shades of the same color. For example, the ground coat might be delft blue and the finishing coat light gray. The result would be a feathery pattern of delft blue and gray. Two shades of gray give a good effect, the ground coat being light gray and the finishing coat dark. This gives a pleasing play of gray tones that is pleasing without being obtrusive.

Any number of variations can be obtained by combining various colors, mottling techniques and panelled effects. Paneling is a highly successful device, since it breaks up the wall area, and since it lends a slightly formal touch to the uneven pattern.

In soft colors with little contrast in tone, a mottled effect is charming for bedroom finishes and in more decided colors it is suitable for halls, living rooms and dining rooms.

Another technique similar to mottling, yet with its own individual effect, is what is known as the sponge mottled finish. The resulting pattern is more uniform than that produced with crumpled paper and the method is slightly different.

A light undercoat of paint is applied to the surface and allowed to dry. A contrasting color or darker shade of paint is poured on a flat surface and an ordinary bath sponge, cut flat on one side, is pressed into it. Then the sponge is tamped against the wall, leaving a strikingly interesting design where the high parts of the sponge come in contact with the wall surface.

Two or more colors can be used on this finish as well as on the crumpled paper finish. Both are easily done since it requires but one additional operation to the labor required to produce a flat wall finish. For that reason neither finish is costly.

Painted walls of any type have the practical advantages of cleanliness, durability and economy. When taste and ingenuity have been used beauty is added to the category of advantages. Paint is a natural decorative medium. It puts every available color, shade, tone and tint at the service of the home owner's taste. No paint finish is stereotyped. Every "job," because it is hand applied, has a touch of individuality. No paint finish has that "bought by the yard" look that is so abhorrent to modern taste.

As wall painting techniques develop more and more finishes will be made available to the home owning public. The two types of finishes described and illustrated here are well known and in wide use among discriminating people. They are astonishingly simple to produce and have a lasting decorative appeal. ❀

Zinc—Copper: A Correction

THE October issue of this periodical, in its Save the Surface Department, contained an article, entitled

"How to Prevent Metal Stains," containing three illustrations. One of these showed "test panels showing how unpainted nails, at the right, stain clap-boarding, while the painted nails, at the left, make no stain." The other showed

a "test panel showing how the metal cornice, where unpainted, at the right, stains wood, while the painted section, at the left, causes no stain."

As a matter of fact these illustrations were used through error and the descriptions are incorrect. This error would have been apparent at a glance, but for the fact that the original lettering on the upper photographs was lost in reproduction.

In the photograph of the panel showing the nails, under the row of nails to the left appears the word "zinc," under the middle row appears the word "copper," and under the row at the right appear the words "iron and steel," showing that the nails were made respectively of these metals.

The second illustration was more fortunate in that the words "zinc," at the left, and "copper" at the right, show faintly in the cut. The first illustration really shows that zinc nails produce no stain while copper, steel and iron nails do. The second illustration shows that unpainted strip zinc does not stain the painted surface beneath.

Except for these illustrations and the two paragraphs referring to them, however, the statements in the article are correct. ❀

Paint is Essential for Frame Houses

ALTHOUGH in the last twenty years, as the forests have receded farther and farther, there has been an undeniable increase in the price of lumber, people continue to use more wood for building than any other material.

Paint is a very important complement to lumber in the frame house. It is indispensable to the upkeep and preservation of wood that is exposed to the weather and hard wear. The frame house takes and holds paint well and may be easily repainted. A well-built lumber house is as good as new when repainted.

Although lumber has been in use since before the days of written history, there is a deplorable lack of knowledge regarding its structure, characteristics and proper utilization.

Far too often the lumber-built house is faulty in design, plan and workmanship, resulting in unnecessary first cost and subsequent deterioration. Care in the selection of lumber and in its treatment makes all the difference in the world.

Protection against decay is cheap and simple through the use of paint. Fire-stopping construction makes a frame house practically immune to internal fire, and 97 per cent of the fires originate within structures.



Mottling with Crumpled Paper Is One of the Easiest as Well as Most Effective Techniques to Obtain on Painted Walls. The paper is held in both hands and rolled over and over down the wall.



The "Business" Side of the Sponge Used in Making Sponge Finishes Is Clipped Flat.

TIME-SAVER

HoltBid Method Cuts Cost of Estimating for Many Users

By **JOSEPH D. EDDY**

HOLT BID is a time-saver. This method of estimating cuts the time required to estimate the cost of most buildings from two or three days down to from 30 to 50 minutes. HoltBid saves money. Holtbid gets business. HoltBid is accurate. HoltBid guarantees prices.

Users of the HoltBid Method of estimating are enthusiastic over it. They find it is easy to learn, and easy to use. Instead of spending many hours working over a maze of figures, as is required by the old-fashioned method of estimating, HoltBidders get the correct estimates in a comparatively few minutes.

HoltBid has gained hundreds of friends in the building industry. Users of HoltBid have nothing but good to say of this new method of estimating. Read the short extracts from just a few of the letters received from HoltBidders. They tell the story in few words.

The announcement that William A. Radford has become head of the Holt-Bid Service Company

and that the headquarters of the HoltBid organization are now located at 1827 to 1901 Prairie Avenue, Chicago, Ill., met with an immediate response. Hundreds of members of the building industry were eager to learn this simple, easy method of estimating—one of the most difficult and nerve-racking tasks.

HoltBid takes away the necessity of working nights

over long columns of figures. No plans or bills of materials are necessary when estimating by the HoltBid method. There are no bills to peddle. Users of the HoltBid method find they have the jump on their competitors who are still estimating by the methods in vogue thirty years ago. HoltBidders are enabled to give accurate, guaranteed estimates in from 30 to 50

minutes, while their competitors work many long hours over their figures.

Nothing has ever been devised for the building industry that relieves estimators of so much work. That is why they are enthusiastic over HoltBid. The drudgery of estimating has been turned into an easy task. Best of all HoltBidders know that their figures are accurate. They know that when they submit an estimate they will not lose by it, for their figures are accurate. There is no danger of making mistakes. They can't forget to make extensions, as there are no extensions to make.

Space on this page permits us to print only a few of the strong letters

of recommendation for HoltBid that have been received from HoltBidders. These tell the story. HoltBid is a time and money-saver. HoltBidders are able to do what was a hard task easily. They learned to be HoltBidders in a comparatively few hours—some in six or seven hours—and are now reaping the many benefits of their foresight in becoming HoltBidders.

Here is what users have to say about the HoltBid Method of estimating building costs:

Holtbid surely is a time-saver and we are well pleased with it.—From Indiana.

HoltBid certainly saves a world of work over the old method.—From Minnesota.

Practically all our estimating is now being done with HoltBid. It should be a wonderful help to everyone who has estimating to do.—From Ohio.

HoltBid is surprisingly simple and is a big asset.—From North Dakota.

We are able to guarantee prices when we use the HoltBid method of estimating.—From Utah.

We should prefer that none of our competitors know we are using the HoltBid method of estimating until we can get a jump or two ahead of them before they wake up to the many advantages of the HoltBid system.—Source confidential.

Better Plastering

"Keep the Water From Behind the Stucco" Is a Fundamental Rule of Proper Stucco Construction

ONE of the most essential elements in the design of a stucco structure is provision for keeping the water from behind the stucco. This should go even further and the designer should make a study of avoiding any undue concentration of water from getting at the stucco at any point. A study of the methods of avoiding damaging leaks and drips by means of proper flashing will be one well worth the while of the builder.

The reason for this is that capillary action, which draws moisture up into the stucco must be avoided. If stucco is so constructed that it can draw moisture from the ground or any other sources, deterioration cannot be avoided. This is caused for the most part by the alternate expansion and contraction resulting from the recurrent freezing and thawing of the absorbed water, which affects breaks between the stucco and finally causes cracks in the material.

Suitable flashing should be provided over all door and window openings and wherever projecting wood trim occurs. Wall copings, cornices, rails, chimney caps, etc., should be of concrete, stone, terra cotta or metal, with ample overhanging drop grooves or lips and water tight joints. If copings are set in blocks with mortar joints, continuous flashing should extend under the coping, projecting beyond and forming an inconspicuous lip over the upper edge of the stucco. Continuous flashing with a similar projecting lip should be provided under brick sills. This flashing should be so installed as to provide absolute protection against interior leakage.

Cornices should project well from the face of the stucco and should be provided with drip grooves or flashing. Sills also should be provided with flashing to insure the wash of water over the face and not over the ends.

Special attention should be given to the designs of downspouts and gutters at the returns of porch roofs where the over-

flow would result in discoloration and cracking. The end joints should be protected with sheet lead or zinc flashings.

Wherever the design of the structure permits, an overhanging roof or similar projection is recommended for the protection it affords. It cannot be emphasized too strongly that all exposed stucco surfaces should shed water quickly.

Wherever departure from the vertical is necessary, as at water tables, belt courses, and the like, the greatest possible slope should be used.

It should be remembered that the flashing should be, in almost every case, in position before the metal lath is applied. Exception to this rule will be noted in the details of flashing which will follow the general requirements given above.

Good flashing for a structure must, of necessity, begin with the foundation. In Fig. 1 are shown details of proper flashing where the frame of the home joins the foundation in the box sill type of western frame construction.

It will be noted that in this type of construction that the stucco and metal lath of the framework are separated from the foundation by a fascia board. Above this board is a drip cap of wood. The flashing, which should project

at least two inches up the side of the wall, comes from behind the metal lath to project upon this drip cap beyond the face of the finished stucco.

The form of the wooden drip cap is particularly important. It should slope on the top, of course, and equally important is the groove cut in the under side of the cap. Water from the top, turned by the flashing and the slope of the wood, tends to cling to the surface of the wood until it is brought around and again comes into contact with the wall of the building. When it strikes the groove, cut into the under side of the cap, its progress is interrupted, it concentrates and of its own weight falls clear.

It will be noted

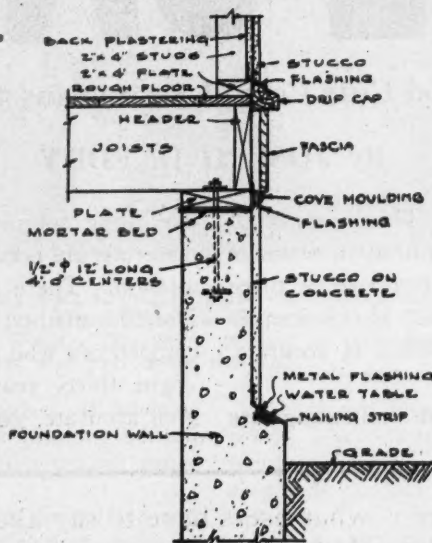


Fig. 1. Box Sill Construction, Western Frame.

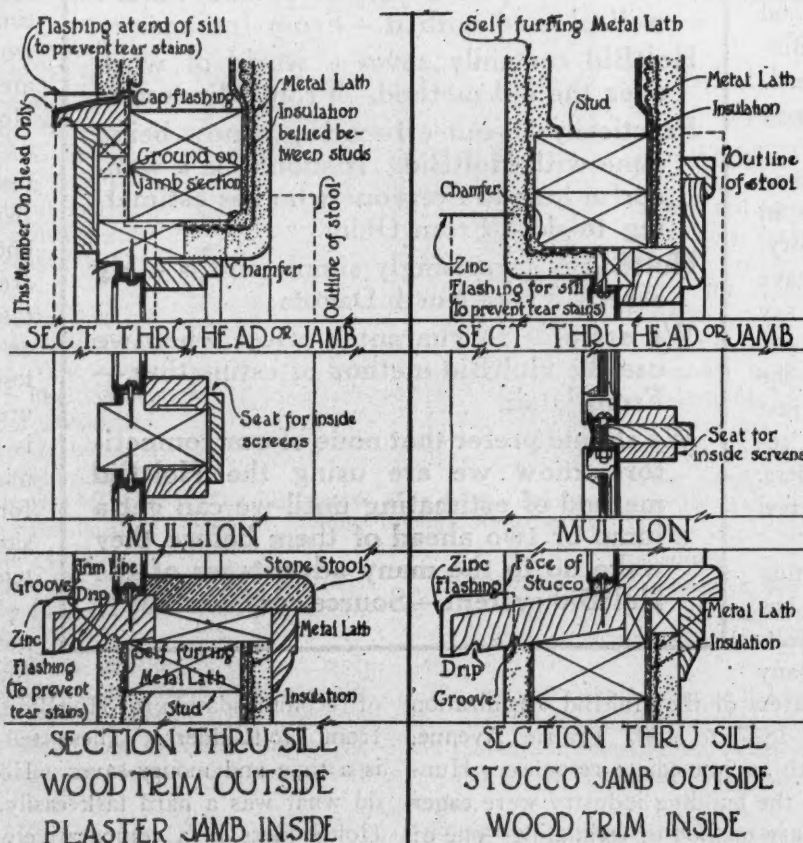


Fig. 2. Flashings in Combination with Steel Casement Windows in Back Plastered Construction.

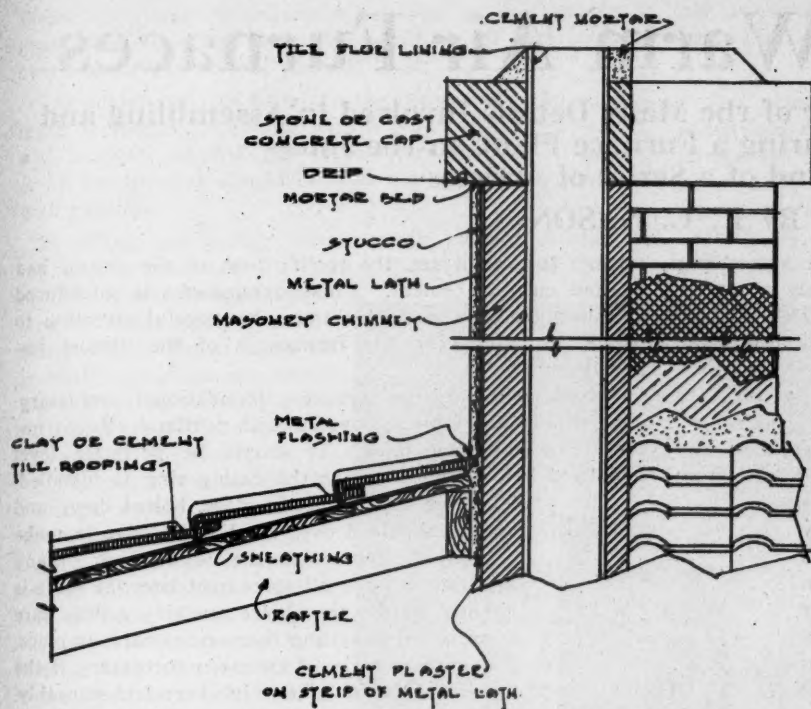


Fig. 3. Metal Lath on a Stucco Base Over a Masonry Chimney.

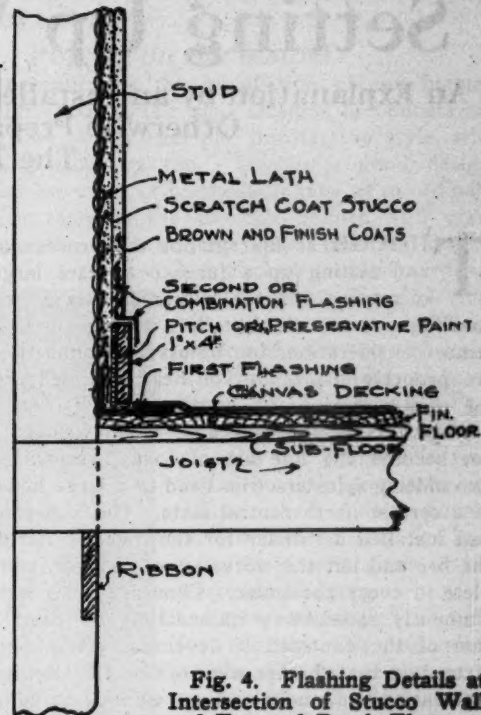


Fig. 4. Flashing Details at Intersection of Stucco Wall and Exposed Porch Floor.

that directly under the fascia board in Fig. 1 there is a cove moulding which is in contact with the foundation. Here again flashing should be used, coming from behind the cove and over the top of the stucco which covers the foundation.

As has been noted before in this series of articles, the stucco should not be carried to the ground, where it may absorb water. Here it is stopped at the water table, which is given an adequate slope to carry off any moisture which may fall at this point. Where no fascia board or other wood construction is used between the stucco on the framework of the house and the stucco on the foundation and the vertical surface is not interrupted until the water table is reached, no flashing is used.

The detail shown in Fig. 1 may also be used where a fascia board is run around the entire house between the first and second stories, as sometimes is done in the western type of frame construction to forestall cracks as shown in a previous article in this series. The only difference is that the stucco on metal lath resumes under the cove moulding instead of the stucco on the foundation as shown in the illustration.

When a brick foundation, or a brick veneer is used on the outside of a foundation wall of other material, the stucco and metal lath may be run down to a wooden drip cap which rests directly on top of the foundation, and which is flashed in the same manner as is shown in Fig. 1.

Another important point is the flashing over the outside of the door and window caps. Here the flashing should be brought from the wall behind the metal lath and project

onto the top of the cap wall beyond the point where the finished stucco will come. Usually the mouldings of the window or door frames will eliminate the necessity of caring for the drip which will be lead over the front of the caps. See Fig. 2 for flashing details in combination with steel casement windows in back plastered construction.

In places or parts of buildings where it is difficult and uneconomical to lay up masonry units to act as a stucco base in the case of curved or irregular surfaces, it has been found that a very satisfactory solution to the problem lies in the use of expanded metal or metal lath. These can be applied over wood or steel studs which are so located as to conform with the general contour of the surface desired, or the steel studs can be shaped to conform.

Another method is to use wood cut with a band saw to the desired curvature of irregular outline and secure this to a vertical support and then apply the metal lath over it. Stucco applied on metal lath has been found to perform quite as satisfactorily as stucco over masonry units so that the two types of bases can be used jointly to meet all architectural requirements.

A problem which has puzzled many of the builders of stucco homes is that of avoiding the "tear" stains which sometimes form at the ends of the window sills. These stains, in the form of stripes of discoloration under both ends of a window, are formed by the concentration of water on the window sills washing off the ends of the sill in a stream instead of over the front edge. This concentration of water often wears away the wash coat of the



Flashing of Flat Decks Is One of the Problems of Careful Stucco Construction. Here is shown the first step.

(Continued to page 182.)

Setting Up Warm Air Furnaces

An Explanation by an Installer of the Many Details Involved in Assembling and Otherwise Preparing a Furnace Plant on the Job—
The 2nd of a Series of Articles

By R. C. NASON

THOUGH at first glance the process of assembling and setting up a furnace appears largely a matter of routine, it actually represents a network of details puzzling even to old installers at times. Tightness is the prime consideration, for unless all connections and joints are properly made loss of heat and delivery of dust to the rooms ensue.

I recall several years ago, when furnace erection had not become the fine art of today, receiving a call from two elderly spinsters who lived in a large house in a certain north central state. Our company had installed a furnace for the owners, started the fire and left the work, as we thought, complete in every particular. Though results were eminently satisfactory immediately on completion of the contract, it developed after about sixty days that the fire went out on the slightest inattention and smoke and gas were being delivered to the house in noticeable quantities.

A call soon brought me to the house and a search for the difficulty was begun. There was a leak somewhere; this was evident. Yet where? That was difficult to learn. In fact, it was only after dismantling the plant, to the discomfort of the old ladies, that several apertures were found between the firepot and combustion dome.

It was through these tiny openings that products of combustion flowed to the casing at times and, when the ashpit door was closed, the cool air of the casing was sucked into the firepot above the fire affecting the draft and causing the fire to go out. The holes were caused by crumbling of the cement placed between the two parts as a seal. It appeared that in setting the combustion dome in place air pockets had been left in the

cement and, as it set, the terrific heat of the firepot had worked out the cement. This circumstance is introduced at this point only to demonstrate that careful attention to details in assembling the furnace is of the utmost importance.

Before setting up the furnace a foundation is necessary. This should be of brick, covered with portland cement not less than one inch thick. It should be perfectly level and hard before anything but the casing ring is installed.

The ring may be set in place, bolted down and cement moulded over the bottom edge to make a tight contact with the foundation. Many installers lay the fill-up cement later, as there is liability of the thin layer cracking unless care is exercised in setting the various parts in place. Fill-up cement is, of course, unnecessary if the cement of the foundation has been laid smoothly. Yet unless this is done by an expert my experience shows there is usually unevenness in the surface.

The accompanying illustrations, Figs. 2, 3 and 4, show the approximate area covered by the foundation. In this instance it was constructed according to the Standard Furnace Code and is 18 inches beyond the casing in the rear and sides and 36 inches in front. Though the cold-air box, noted at the left, is of metal, it was considered desirable to extend the foundation about 2 feet under the connection boot.

Following the installation of the ring, firepot, combustion dome and radiator (when located on top, as in Fig. 2) are placed in position in the order named. The casings are customarily furnished with cup joints, as shown in Fig. 1, the tongue of the piece above fitting into the groove of the section below. Cups—grooves—are then generously filled with prepared furnace cement before the top section is set on. Right here a few suggestions on furnace cement are appropriate.

To illustrate. Back in the 90's, in a city in Michigan, the firm for which I worked employed a foreman who thought "homemade" cement would save the company money. His mixture was composed of ingredients among which were linseed oil, pigment and silicate of soda. No asbestos was included. Our company had installed some 25 furnaces that fall, each being put together with this cheap mixture.

The installations were tight at first, sure enough, but practically none of the joints held tight until the end of the first heating season. As the moisture baked out of the cement, disintegration set in and leaks soon developed to kill the fires and send clouds of gas into every room. The cost of making good on these jobs required practically the entire profit the firm had made on the contracts. Forever after the "homemade" mixture was forgotten and only the best grade of prepared cement used. Had the slight extra cost of the better grade cement been paid in the beginning loss would have been converted into profit.

What I Learned About Cementing Joints

One of the better grades of prepared furnace cement is composed in part of clay, sand, silicate of soda and asbestos fibre. It is supposed that other good brands are mixed similarly. They nearly all include asbestos, however, due to its fire resistant qualities. The ingredients are, never-



Fig. 1. Cup Joint Usually Furnished on Furnace Casings.



Fig. 2. Installers Setting the Radiator of a Furnace in Its Proper Position.

theless, relatively unimportant so long as the cement is guaranteed to make tight joints which will remain tight over a period of several years at least.

The metal surfaces to which the cement is to be applied must be clean. Scrubbing with a wire brush, then wiping with a clean rag will give satisfactory results. If grease or oil remain they should be removed with a rag saturated with gasoline.

In filling the casing cups enough cement should be applied to completely fill them. I customarily thin some of the cement to the consistency of paint, apply it to the metal with a brush, then fill in with heavy cement, working it into the metal by pressure. All air pockets must be removed at this time.

The true location of the castings should be found in the manner shown in Fig. 2 before the section is actually settled into position. Unless this is done, effort to bring the piece to the proper location is likely to twist out the cement and lead to leaks after the fire has been started. The practice of setting the castings in place dry, then plastering over the joint on the outside is not recommended.

Surplus cement, pushed out by the upper piece when placed in position, may be smoothed down to a feather edge. The better grades of cement have excellent adhesive strength, this being in some cases as high as 100 pounds per square inch.

Putting on the Casing

After the castings have been set up, the front with its doors, is next installed. Then the plant is ready for the outer and inner casings. The outer casing is applied first and is usually of 26 gauge galvanized iron. The tie rings, noted in illustrations, Figs. 2, 3 and 4, hold the sheets tight and rigid.

Years ago when I started to install furnaces it was not customary to include inner casings, but experiments have proved that a substantial saving in fuel results from their use and the heater operates more efficiently all around. By interposing a thin layer of air next to the casing in this manner loss of heat to the cellar from casing radiation is practically negligible.

Most manufacturers now supply lugs on the rings for supporting the inner casing about an inch from the outer casing. Black iron or tin is the material used. In some localities inner casings are made of corrugated sheet, formed at the shop in a brake. This type of casing is installed in direct contact with the outer casing, the cool air passing upward between the corrugations. Inner casings need not extend below the grate line.

Some installers paste a sheet of asbestos paper on the inner casing peaning over the bottom and top edges of the metal to prevent loosening of the asbestos. Then, sometimes a tin sheet is fastened directly to the inside of the outer casing, with no intervening air space. Both the asbestos sheet and the extra metal inner lining are of little

use unless an inch or so of free area has been left between inner and outer casings.

Putting on the Bonnet

The next operation is the installation of the bonnet, sometimes referred to as the top. Designs of bonnets are numerous. There is, for example, the flat top style, with pipes extending from its top. This is a good design, especially when low rates of combustion exist as in ordinary heating. Then there is the flat top bonnet with pipes extending from the sides and the more common design,

the pitched (conical) type as seen in Figs. 3 and 4. As the cellars of most buildings are low the flat top of bonnet, which requires plenty of head-room to accommodate the elbows of the distributing pipes, is not common in residence heating, popularity favoring the conical bonnet instead, because its design permits the proper pitch of the warm air leaders.

There is no regulation height for bonnets, this depending on the diameter of the warm air leaders. If these extend from the sides, as is customary, obviously the bonnet height must be greater than the diameter of the largest pipe. This will almost never be less than 10 inches, to accommodate 8-inch pipe, nor higher than 12 inches, to take a 10-inch pipe. When pipes greater than 10-inch are required two smaller pipes are preferable. For instance, two 9-inch pipes are recommended to replace one 12-inch pipe.

Fitting the Collars

Considerable progress has been made in the art of fitting on distributor-pipe collars to the bonnet. Ten years ago we installers thought nothing of going to the job and back to the shop several times before these could be made to fit. But that was back in the days when labor was cheaper in comparison with the cost of material. Nowadays this could not be done, however, but they are made the right size in the shop and fitted on the job in one or two operations.

The tops of the furnace pipes should be on the same plane at the bonnet, otherwise an unequal distribution of heat is likely to result. The installer shown in Fig. 3 is fastening on a collar to receive a warm air leader. Collar seams are so riveted that the warm-air pipe will slip over without catching on the rivets. First, the collar must be trimmed to fit the bonnet at an angle to correspond with the angle of the pipe to be connected.

After the collar is trimmed to fit, mark around it on the bonnet with pencil and cut the hole. With dividers mark around the end of the collar to be inserted in the bonnet $\frac{1}{2}$ inch up and notch $\frac{1}{2}$ inch apart. With pliers turn up every other piece to 90 deg. Then insert the remaining ones in the hole in the bonnet and hammer them over tight on the inside in the manner shown in Fig. 3, using the hand dolly block. In locating the collars it should be recalled that the hottest part of the furnace is at the back and it is here that the leaders to be favored, such as those going to the coldest rooms, would best be located. In

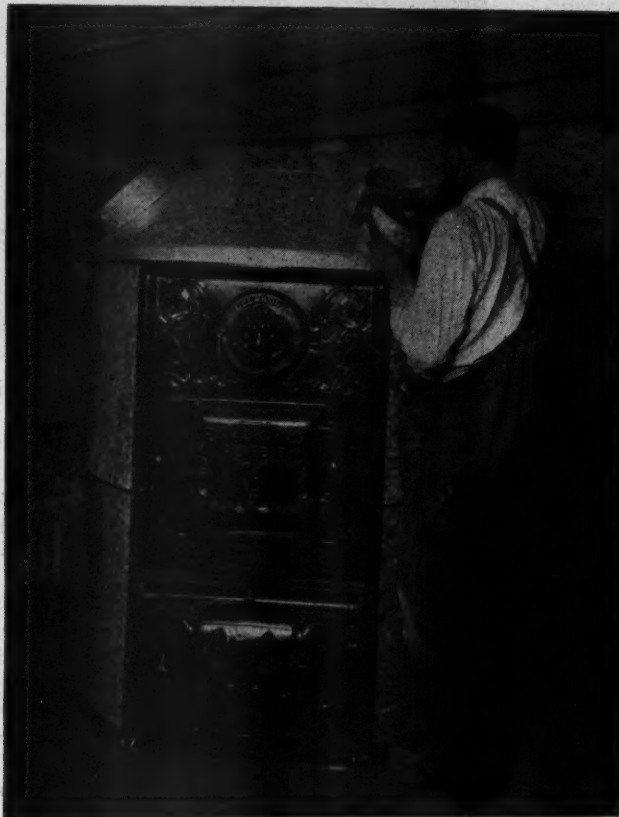


Fig. 3. Clinching the Collar Notches with Hand Dolly and Hammer.

ascertaining the correct angle of pitch for the bonnet the pitch of the leaders from the furnace to the stack is the determining factor. This should not be less than one inch to the foot.

Insulation Against Fire

The plant is now ready for the smoke pipe and warm air leaders, which are shown in place in Fig. 4. Yet, before the installation is completed, so far as the cellar is concerned, measures must be taken to insulate surrounding woodwork against fire. How we do this in one instance is noted in Fig. 4. The directions of the Standard Code afford simple rules to follow. Section 4 states:

"Any furnace, the casing top of which shall come within 16 inches of a combustible floor, ceiling or joist, shall be protected by a metal shield extending not less than 18 inches beyond the casing of said furnace. The shield shall be suspended at least 2 inches below woodwork, allowing free air space between shield and woodwork. No furnace top or casing coming nearer than 6 inches of ceiling or joists shall be allowed in any case."

Again, in Section 5, it states:

"No warm air pipe shall run within one inch of any woodwork unless such woodwork is covered with asbestos paper and the paper covered with tin or iron."

As most building codes passed in late years include directions on the insulation of heating plants against fire, no installer can afford to overlook this factor in making an installation coming under the scope of the building laws.



Better Plastering

(Continued from page 179.)

stucco, the coloring, or stains through impurities carried in the water, possibly dirt washed from the window sill.

The solution of the problem obviously lies in eliminating the concentration of water at the ends of the sill and forcing it over the front edge. This is accomplished by nailing small squares of zinc at the extreme ends of the sill. These strips force the water over the front where concentration and consequent damage to the finish of the stucco is avoided.

It should also be remembered that the under side of the sill should be grooved as was the drip cap provided for the joining of the foundation and the walls. This will keep the water from the wall directly under the windows.

A most important place for proper flashing is about the chimneys. On a stucco home the chimneys usually are finished in stucco to harmonize with the rest of the house, but are of masonry construction, lined to conform with the rules of fire safety. The stucco should be applied only after the chimney has been carefully covered with metal lath. Such a chimney always should have a cap of stone, cast concrete or other masonry which will overhang the metal lath and stucco and provide protection against water seeping in at the joint. Usually this is accomplished by providing a generous overhang and grooving the underside of the chimney cap well away from the stucco, so that the water will be carried to the vertical, and unbroken portions of the chimney where it can do no damage.

With such a chimney, as with any other, the flashing between the chimney and the roof is a matter which the builder must watch carefully. Details of such flashing are shown in Fig. 3. The sheet metal is brought from behind



Fig. 4. The Completely Assembled Furnace with Warm Air Leaders in Place.

the metal lath, well up on the chimney and well under the roofing material. It should be remembered that this must be applied before the chimney is stuccoed or the roof finished.

A problem in flashing frequently met in the construction of houses of the Italian and Spanish types is found when a stucco wall comes to a finish at the floor of a flat exposed deck over a porch, loggia or similar extension from the main structure. Such a roof, with almost imperceptible pitch, affords a lodging place for snow and ice, and flashing of the ordinary nature often will not serve to protect the wall properly when a thaw comes and forces the roof to carry off a large amount of water, which the slight pitch will not allow it to do rapidly.

An excellent manner in which to plan such a detail is shown in Fig. 4 (page 179). The first steps of the construction are shown in the illustration of such a deck before the lath or stucco had been applied to the walls or the finishing material to the top of the deck.

Flashing first is placed in the angle formed by the junction of the deck and the wall. This is given a generous allowance on both surfaces. The metal lath, and first coat of stucco then are applied. Following this, a board one inch by four inches, covered on its back and bottom with pitch or a preservative paint, is nailed to the wall through the scratch coat of stucco and into the wood studs, the bottom edge of the board being in contact with the flashing on the deck.

Another flashing then is placed on top of the board, in the manner shown in the diagram, and the two finishing coats of stucco brought down over this last flashing. In this manner the stucco both behind and above the wood board is protected from the water.

Many details may arise in the erection of a house and the manner in which they are handled marks the difference between competent and incompetent design and between the entirely satisfactory home and one which may prove troublesome. Each flashing problem is to some extent individual, but by following the examples given and altering the details to fit the job in hand a satisfactory building will result.

Future articles in the Better Plastering Series will deal with other cardinal points of good stucco design, the application of the lath to the stucco homes and with stucco finish.

Mortar for Cold Weather Work

By R. P. BROWN

WITH the approach of winter, engineers, architects, contractors and builders again take up the study of how to handle their materials so as to avoid the delays and dangers of frozen mortar, plaster and concrete. Every year sees a greater volume of winter work, with profit to the contractor, convenience to the owner and an extended season of employment for the workman. All organizations interested in construction are urging a twelve-month building year, and are studying materials and methods in an effort to determine how this may best be secured. An accurate knowledge of the properties of the materials used is essential, and one of the basic materials is mortar.

The Engineering Society of Wisconsin has been interested in this subject for several years and conducted an extended series of tests on various mortars at the University of Wisconsin. Their report has just been published by the university under the title "Results of Strength Tests on Mortars for Masonry Construction Cured in Warm and Cold Temperatures."

Eight lime and portland cement mortars and four proprietary bricklayers' cements were tested for shear tensile and compressive strength after curing in warm and cold air storage. The warm storage specimens were cured at an average temperature of 70 degrees F, while during 1923 the cold storage temperature averaged 47 degrees F, the lowest being 31 degrees F. In 1924 the average temperature for the first week was 15 degrees F, and for the first month 45 degrees F. In 1923 the cold air curing was done in a compartment below the mixer house, but in 1924 it was done in a refrigerator. Air was circulated in the freezer by means of an electric fan which was kept running throughout the test.

Figures 1 and 2 show how the shear and compressive strength tests were made. Standard briquettes were used for determining the tensile strength. The shear test was made on the three brick specimens and the two bricks which remained bonded together after this test were then cleaned and crushed to determine the compressive strength.

The accompanying charts summarize the results of these tests. Warm storage results are shown on the left of each chart, and may be compared with cold storage results which are shown on the right. These charts make an interesting study for those who are interested in getting the maximum results for their money. Economy is always desirable and, of course, safety is essential. A study of the figures will show how both safety and economy in mortar may be secured. Mortar E, composed of one part of

portland cement, two parts of lime and nine parts of sand by volume, gave consistently satisfactory results under all storage conditions.

Shear Tests

Shear comes into play in the bond between bricks. This bond must be sufficient to resist side pressure against the wall, displacement of the building units, and bulging.

In winter work it is usually bulging that gives the most trouble, and this must be avoided by using a mortar reasonably high in shear strength.

As will be seen from the chart, the lime-cement specimens ran high in warm storage, and when tested after being cured in cold storage the results were likewise excellent. Mortar E, which contained twice as much lime as cement, was almost as strong as straight portland cement in warm storage, and held its strength well under cold curing conditions. This mortar is placed at the head of the list by the committee in their conclusions.

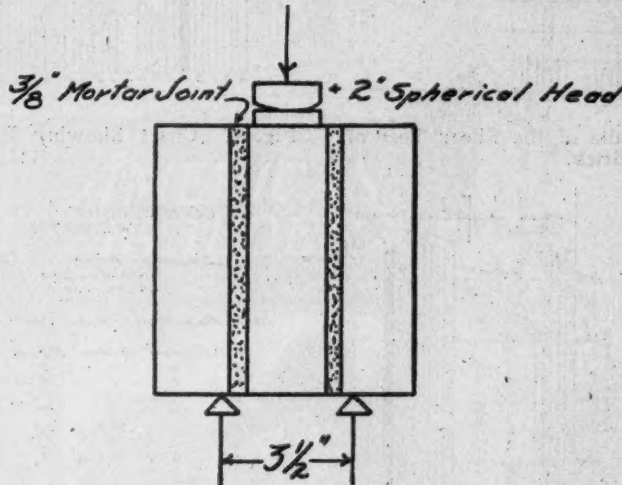


Fig. 1. Method of Making the Shear Test. At the bottom knife edges on spherical seats are used.

Tensile Strength

No masonry structure can be designed to eliminate all eccentric loading. Such loading throws one side of the wall into compression and the other side into tension, and so the mortar is called upon to resist a certain amount, comparatively small, of tensile stress. Even in the best designs it is impossible to use sufficient tension members to entirely relieve the mortar of some tensile stress. The lime-cement mortars show ample tensile strength to resist all tension that may occur in a properly designed wall.

It is interesting to note that the lime-cement specimens all showed increases in strength in cold storage as compared to warm storage. This may probably be accounted for by the fact that the air in the cold storage chamber held more moisture than was present during the warm storage period. This additional moisture may have aided in the hydration of the portland cement and thus increased the strength.

Mortar E practically doubled in strength in cold storage, having a greater relative increase than any other mix. This indicates that it is particularly suitable for cold weather work, for not only does it have the necessary strength but also it is highly plastic and easy to handle even when the workmen's hands are cold and stiff.

Compressive Strength

The compressive strength of mortar is ordinarily thought of as being the most important. It is most essential, but it should

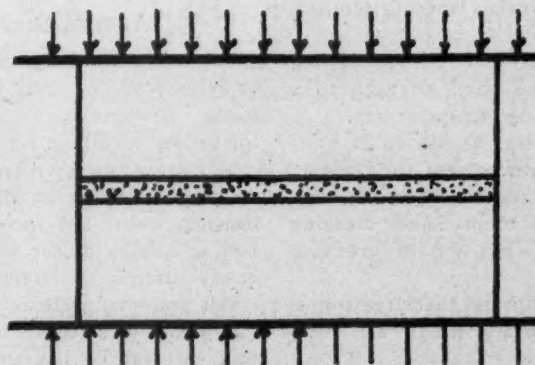


Fig. 2. Method of Making the Compression Test. Above is the spherical head, below the platform of the machine.

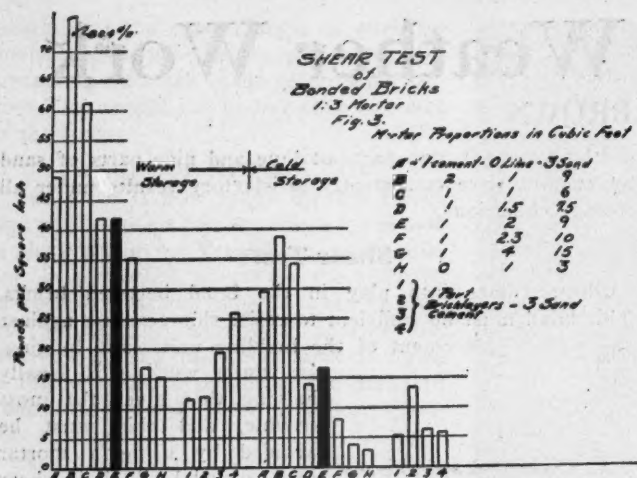


Fig. 3. Chart Showing Results of the Shear Test of Bonded Brick.

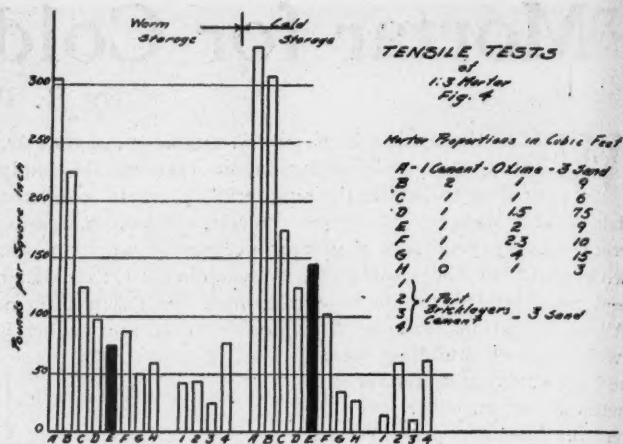


Fig. 4. Chart Showing Results of the Tensile Tests of 1:3 Mortar.

be considered in relation to the loading of the wall. If the load on a wall was uniformly distributed and centered, compressive strength would be sufficient. However, if any eccentricity is introduced, as must necessarily be because of the fact that the floor beams are only set into the wall, the stability of the wall depends upon the shear and tensile strength of the mortar as well as its compressive strength.

Cold weather did not decrease the 28-day compressive strength of any of the specimens containing lime. In fact, all the specimens in the lime-cement series showed increases. This may be accounted for by the presence of more moisture in the air during cold storage.

Two of the lime-cement specimens exceeded the power of the testing machine in warm storage, and four of them could not be broken after cold storage for the same reason. Mortar E showed an increase in strength of over 300 per cent in cold storage, just as in the tensile strength test.

Conclusions of Committee

1. With all cements save one, freezing decreased the bond strength of the mortar to the brick. In most cases this decrease was very marked. In the exceptional case, where there was no apparent injury due to freezing, the bond strength after curing in warm or in freezing temperatures was very low.

2. Curing at low temperatures just above the freezing point of water adversely affected the bond strength to a less extent than curing under freezing temperatures.

3. Basing judgment on the unit stress at flaking of mortar, it appears that curing at temperatures near the freezing point had little effect on the crushing strength of the mortar in the bonded brick. On the other hand, freezing appears to have had a weakening effect on the crushing strength.

4. From the above evidence it appears that freezing is detrimental to the strength of mortars which are commonly used in bricklaying.

5. From the standpoint of strength the following mortars gave the best results:

1 vol. of Port. cement to 2 vol. of hyd. lime to 9 vol. of sand.

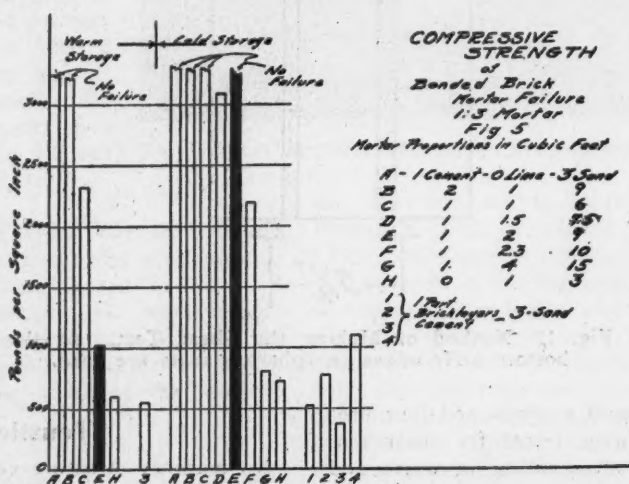


Fig. 5. Chart Showing Results of Compressive Strength Tests of Bonded Brick.

1 vol. of Port. cement to 2 vol. hyd. lime to 9 vol. of sand.

1 vol. of Port. cement to 1 vol. of hyd. lime to 6 vol. of sand.

2 vol. of Port. cement to 1 vol. of hyd. lime to 9 vol. of sand.

1 vol. of Port. cement to 2.3 vol. of Q. lime paste to 6.7 vol. sand.

1 vol. of Port. cement to 2.3 vol. of Q. lime paste to 10 vol. sand.

1 vol. of Port. cement to 1.5 vol. of Q. lime paste to 5 vol. sand.

1 vol. of Port. cement to 1.5 vol. of Q. lime paste to 7.5 vol. sand.

1 vol. of Port. cement to 3 vol. of sand.

Of these mixes those containing 1 volume of cement to 2 volumes of lime (hydrate or paste) to 9 volumes of sand are the most economical. Mixes containing equal volumes of cement and hydrate (or paste) though somewhat more costly were stronger especially at one month.

6. Mixtures of lime and portland cement were much more plastic and easier to work than the mortar made with portland cement and sand. The mixtures containing equal parts of hydrated lime and portland cement and one part hydrated lime to two parts portland cement exhibited considerably higher adhesion to the brick than the portland cement mortar.

Actual Strength Requirements

All large modern structures now have frames of steel or reinforced concrete, economically designed to carry the loads. Brickwork in this type of construction is used only for facing or filling, for curtain or partition walls, and carries merely its own weight. Some structures, such as apartment house or mill construction, still have brick-bearing walls, but the actual load on the lowest mortar bed is usually under 100 pounds per square inch, a load easily carried by straight lime mortar.

All tests, as well as experience, show that lime mortar has plenty of strength for modern construction. The 1:2:9 mix (Mortar E) has an exceptional combination of advantages, and it is particularly good for use in cold weather. To require greater strength than that of this mix is equivalent to using steel beams where two-by-fours will carry the load.



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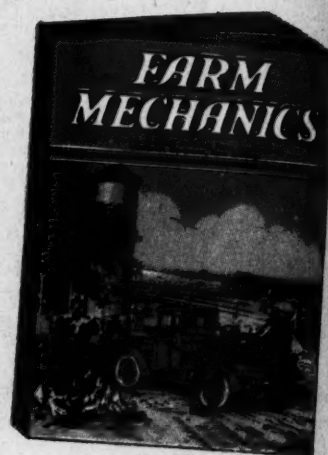
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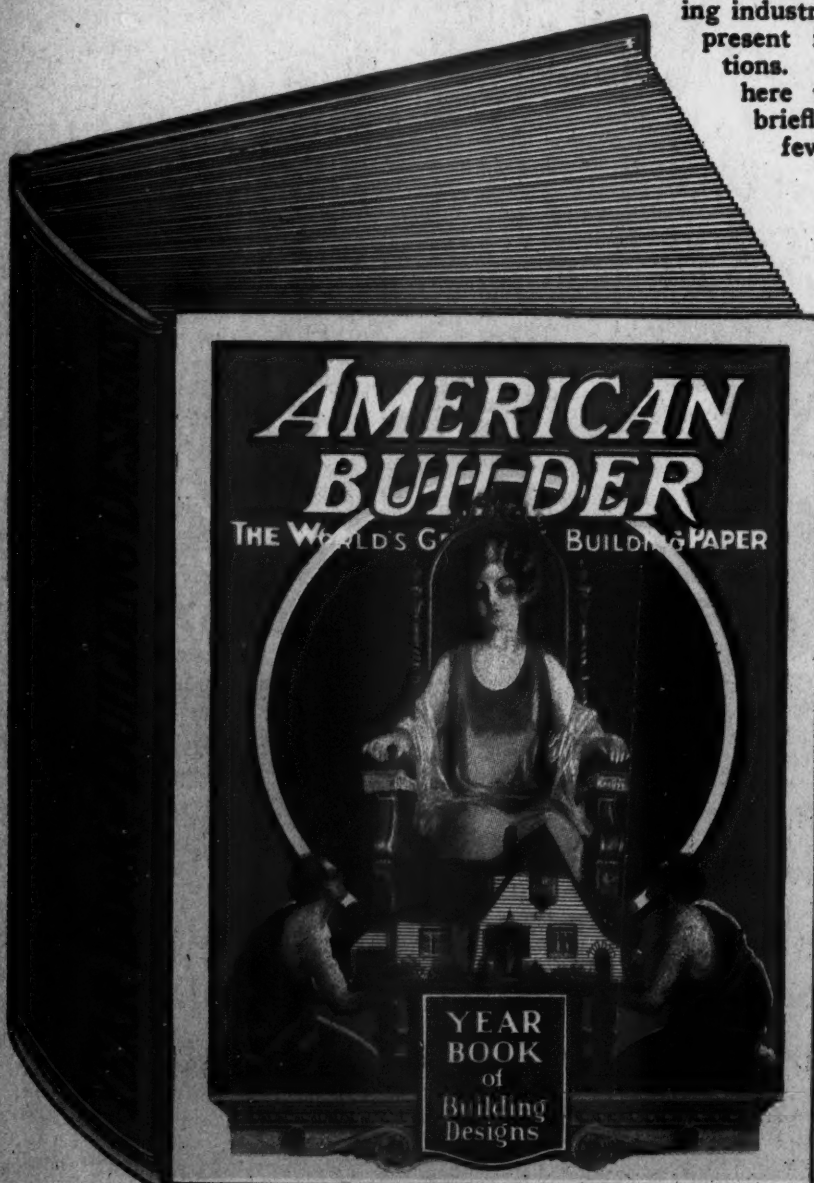
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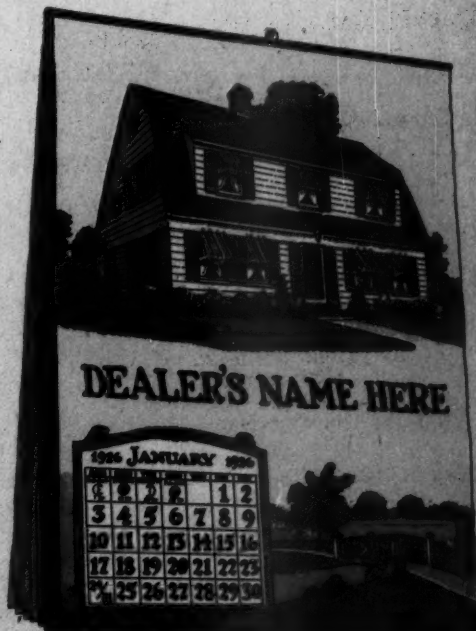


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Test of Cinder Block Featured In Fire Protection Week

AS a feature of Fire Prevention Week last October, a well-known manufacturer of cinder blocks conducted a fire test in Indianapolis, Indiana, the results of which proved highly effective in driving home the lesson of fire prevention work and also in stressing the fire-retardant qualities of cinder block as a building material. The test was before a large number of state and city officials including the state insurance commissioner, the city fire chief, and fire, building and insurance authorities as well as more than 800 other persons.

A small, two-story house with slate roof was constructed entirely of cinder block. This was more than half filled with oil-soaked wood and set on fire. The fire was fed from time to time through a side window and allowed to burn for 45 minutes. At the expiration of that time it was extinguished with water by the fire department. The pyrometer reached its maximum capacity of 1,800 degrees within 30 minutes and the maximum temperature was estimated, by the engineer in charge, as reaching 2,000 degrees.

As an example of the severity of this test, the reports of the famous Burlington Office Building fire in Chicago, in 1922, state that the temperature reached was 1,700 degrees. During the course of this fire test, it was found that the blocks were red hot inside the house, while the outside surface was just warm to the hand. Examination of the house after the fire showed that the cinder blocks and slate had not been damaged. Cracking or spalling of the material had not taken place, even after the water was thrown on the structure. This last point is of importance as showing the imperviousness to sudden changes of temperature, an element which often causes most serious consequence in fires.

As a further test, a cinder block which had been frozen into a cake of ice was thrown into the fire when at its hottest. Even this block was entirely unaffected and was subjected to a test to prove its unimpaired strength. This block tested 790 pounds per square inch gross area. This



Even When the Blocks Were Red Hot Inside the House, the Outside Surface Was Just Warm to the Hand, an Indication of the High Fire Retardant Qualities of This Building Material.

figure is 40 pounds above the New York building code requirement for a new block and 90 pounds above the Hoover code requirement.

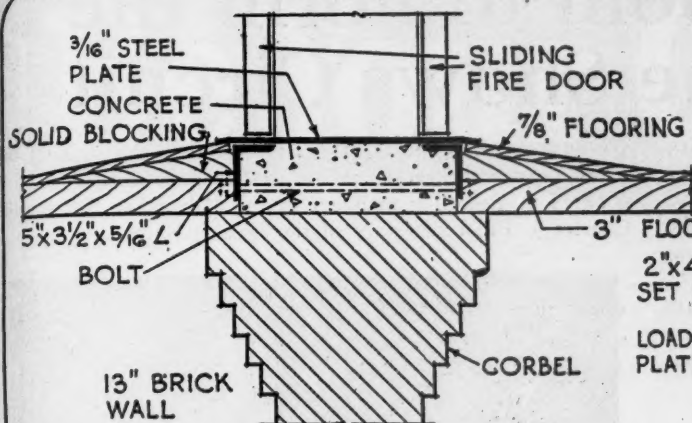


Paint Men Meet

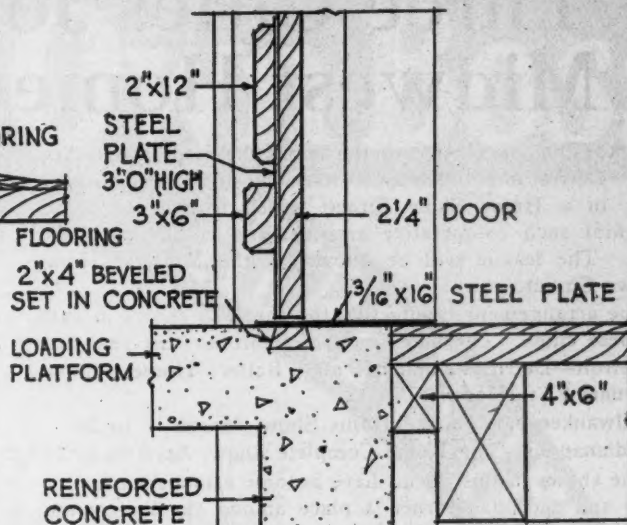
THE Martin-Senour Company, paint manufacturers, with factories located at Chicago, Brooklyn, Lincoln, San Francisco, Los Angeles, Dallas and Houston, held their annual Chicago division sales conference at the Hotel Sherman the entire week of November 16th to the 21st.



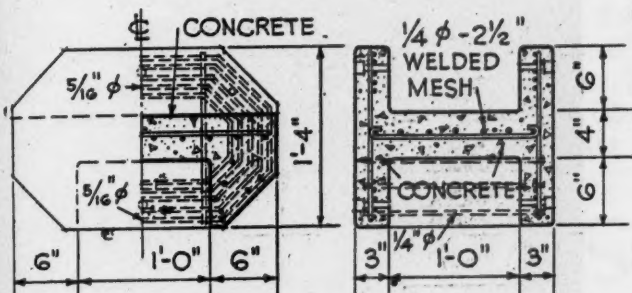
Eight Hundred Interested Spectators, Including Building, Insurance and Fire Officials, Watched This Test of a Small Cinder Block House, Which Was Made as a Feature of Fire Prevention Week, in Indianapolis, Indiana. The blocks were entirely undamaged after a 45-minute test in which the temperature reached more than 1,800 degrees.



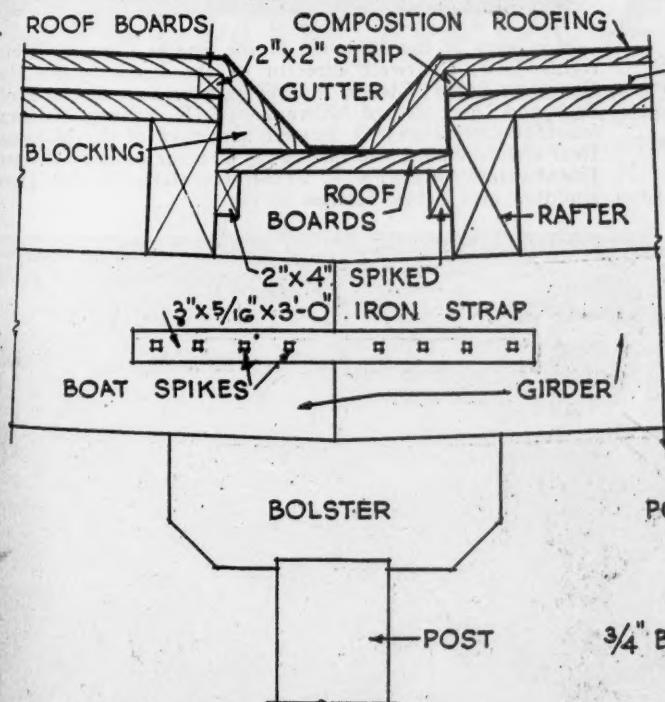
FIRE DOOR DETAIL



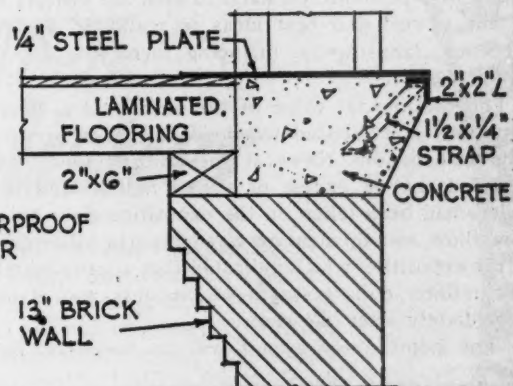
BUMPER DOOR DETAIL



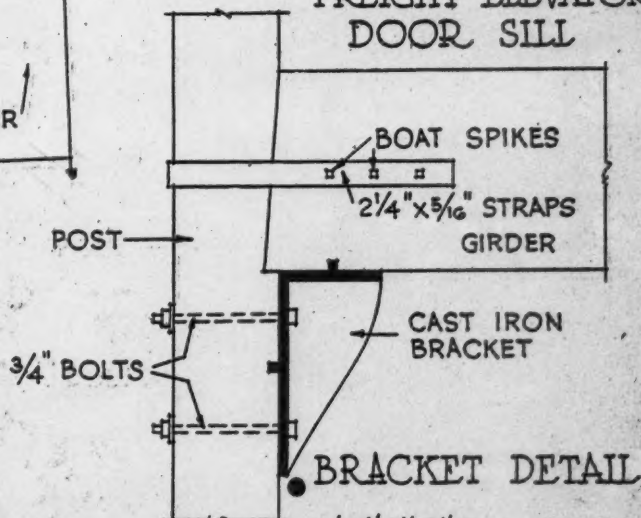
REINFORCED CONCRETE POST CAP



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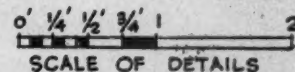


PLATE NO. 6

value of insulation at the ends of the columns. The concrete cap shown in the detail was the result of these tests. This cap permitted the development of the full strength of the column before failure occurred under fire conditions. Ordinarily, the metal cap fails long before the timber column itself fails. Information concerning the merits of this column cap may be had from the National Lumber Manufacturers' Association. This cap is patented and the patent assigned to the public.

Three Cities Join to Form the Midwest Home Shows Circuit

THE managements of the home shows of Milwaukee, Detroit and Indianapolis have joined in the formation of a Home Show Circuit which is believed to be the first such co-operative arrangement in this particular field. The league will be known as the Midwest Home Shows Circuit.

The arrangement is effective for the 1926 shows in each of these cities. The dates on the circuit for this year are:

Detroit—Detroit Builders' and Better Homes Show, February 27 to March 10.

Milwaukee—Milwaukee Home Show, March 13 to 20.

Indianapolis—The Home Complete Show, April 10 to 17.

The shows in this circuit have become established institutions and each has earned a place among the largest and best home expositions in the country. Each is held in a large trading center and has come to be recognized as a powerful influence in promoting the building of more and better homes and a greater regard for community and civic improvement. Their educational value is far reaching. Every home necessity and luxury is brought under one roof and experts are on hand to give the visitors the benefit of the newest and best ideas in planning, designing, construction, landscaping, financing furnishing and all-around equipping.

The commercial value of the shows, as a clearing house for sales, is evidenced by the fact that a survey made by The Indianapolis News at the Indianapolis show in 1923 revealed that in excess of a half million dollars worth of orders had been taken on the exposition floor by exhibitors. The show management received reports following the close of the exposition which indicated that approximately another half million dollars worth of business was done in sales immediately after the show.

"The home show circuit will be beneficial both to the

exhibitors and to the shows themselves," in the opinion of J. F. Cantwell, director of the Indianapolis Show.

Perry C. Powell is manager of the Milwaukee Show and Charles J. Prost secretary of the Detroit Show.



Managers of the Midwest Home Shows Circuit. Left to right—J. F. Cantwell, director of the Indianapolis Home Complete Show; Claude Flambeau, president of the Badger Sash and Door Co., of Milwaukee; J. E. Rilling, Milwaukee manufacturer; Perry O. Powell, secretary of the Milwaukee Real Estate Board and managing director of the Milwaukee Home Show; Charles J. Prost, secretary of the Detroit Builders' and Better Homes Show.



A Partial View of the Exhibits at the 1925 Indianapolis Home Complete Show Which Gives an Idea of the Elaborate Decorations Which Made an Alluring Background for This Display.

Be Your Own Boss

If you're tired of working for someone else—here's your opportunity to get into business for yourself. Be the Johnson Floor Expert in your community. We'll help you get started.

Earn \$15 to \$25 a Day - - -

There's a bigger demand every day for floor maintenance service in homes, business and professional offices, stores, schools, clubs, hotels and public buildings. In just a short time you can have a business of your own that will pay you \$15 to \$25 a day. And all you need to start is a

JOHNSON'S WAX *Electric floor Polisher*

It's the machine that insures success, independence—a business of your own. Light and easy to operate. Runs from any light socket. Simple and sturdy in construction. Nothing to get out of order. Polishes floors ten times faster and better than any other method. Gets under davenport, buffets, beds, desks and other low pieces without moving the furniture.

Investment Less Than \$50

Think of it! For less than \$50 you can have a profitable business of your own, with a high-class clientele. No more lay-offs. No more dull seasons. You'll be giving orders instead of taking them. You'll be a recognized successful business man. Mail coupon today for full information on the Johnson Floor Service Plan.

Don't Delay—Act Now

Don't put off mailing this coupon. It will mean the comforts and luxuries of life. A bank account. A home of your own. Safe years ahead.

Fill Out
and Mail
This Coupon

S. C. JOHNSON & SON, Dept. A.B. 1, Racine, Wis.
"The Floor Finishing Authorities"

Please tell me how I can earn \$15 to \$25 a day giving Johnson Floor Service.

NAME

ADDRESS

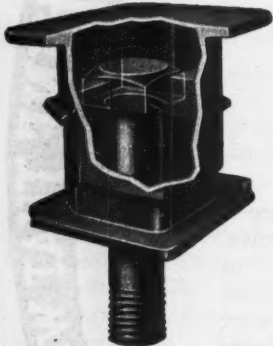
CITY STATE



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For Anchoring in Concrete

CONCRETE inserts, or ceiling sockets, are small anchoring devices which are incased in the concrete for attaching different objects to concrete ceilings, walls, columns and beams.



The Design of This Socket Prevents the Nut Becoming Rusted in.

or the thread jammed so that the bolt can not be taken out of the insert.

The insert illustrated here is simple and compact in design, strong and rigid in construction, quick and sure in action and inexpensive in cost. The head of this bolt is placed in the insert and the nut on the outside, the bolt remaining vertical at all times. The outer shape is such that the concrete reinforces the insert and adds strength to it. It is made for $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ -inch bolts, with standard square heads. Because of its design there is no chance of the nut becoming rusted in

Economical Wood Carvings

WHEREVER ornamental wood carvings are required, exceptionally fine results, as well as great economy, can be obtained by the use of carvings which are molded from a wood product and patterned after the finest hand carvings. These carvings are all perfect reproductions of high grade hand carvings and possess the best possible detail, full depth of grain and are clean cut and sharp.

In addition to the fine grade of work which they represent, they are positively guaranteed not to chip, check, crack or shrink. They can be carried in stock and used at any time as they do not deteriorate with age. The manufacturers suggest that they be tested under the hammer, on the band saw or by driving nails into them.

Their economy is well illustrated by the fact that this company recently reproduced a design that cost \$42.00 to carve by hand and is selling the molded carvings for 17 cents each. They claim that these

17-cent pieces are better than the original hand-carved piece for the reason that they are stronger.



Compact Pulling Machines

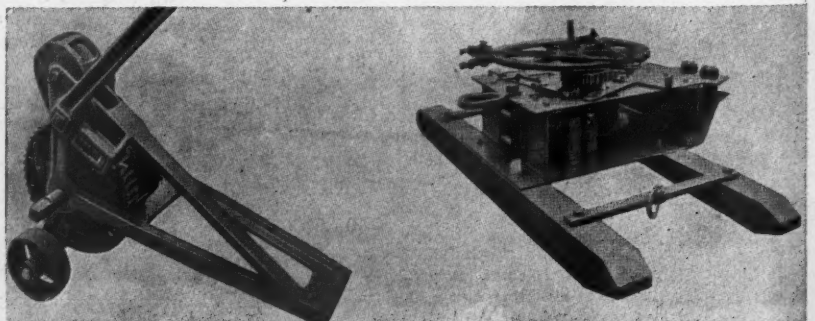
TWO pullers are illustrated here which are designed for quick, dependable operation in a small space and can be applied to many operations in construction work, including house moving, loading, hoisting, pulling trees and stumps, moving heavy materials and machinery and all similar work. The small puller is a hand-operated, one-man machine. It is built throughout of steel and has the strength to pull up to the capacity of a one-inch cable. Various hook-ups are possible, giving it a range of from 10 to 40 tons. An automatic reverse is of particular value in hoisting and two speeds are available, high speed for light fast work and slow-speed for heavy pulls.

The larger machine is of the same high grade, all-steel construction, and is provided with the automatic reverse and two-speed features. It has a straightaway pull which is a great convenience for working in close quarters and in pulling trees in heavy timber and also permits hooking the cable at any height. The danger of breaking cables is entirely avoided by the fact that both horse and man are away from the machine and out of range of the danger.

This machine may be operated either with a horse, truck or tractor and, resting on skids, can be moved by the same power. With various hook-ups its capacity is from 17½ to 100 tons.



Perfect Reproductions of Fine Hand Carvings Are Available at a Remarkably Low Cost.



Two Dependable Pullers, Designed to Operate in a Small Space, Which Are Valuable in Much Construction Work.

You fix unit responsibility

WHEN YOU CAN SAY:

"From bathroom to basement, every Plumbing Fixture—yes, and every Brass Fitting, too—is 'Standard'."

When you specify "Standard" 100 per cent—enameled ware, vitreous china, brass goods—you automatically write service and dependability into the job.

One quality—uniform throughout for the finest built-in bath or the smallest stop-and-drain valve; combined with a range of prices for a variety of fixtures to suit the cost of any house you build.

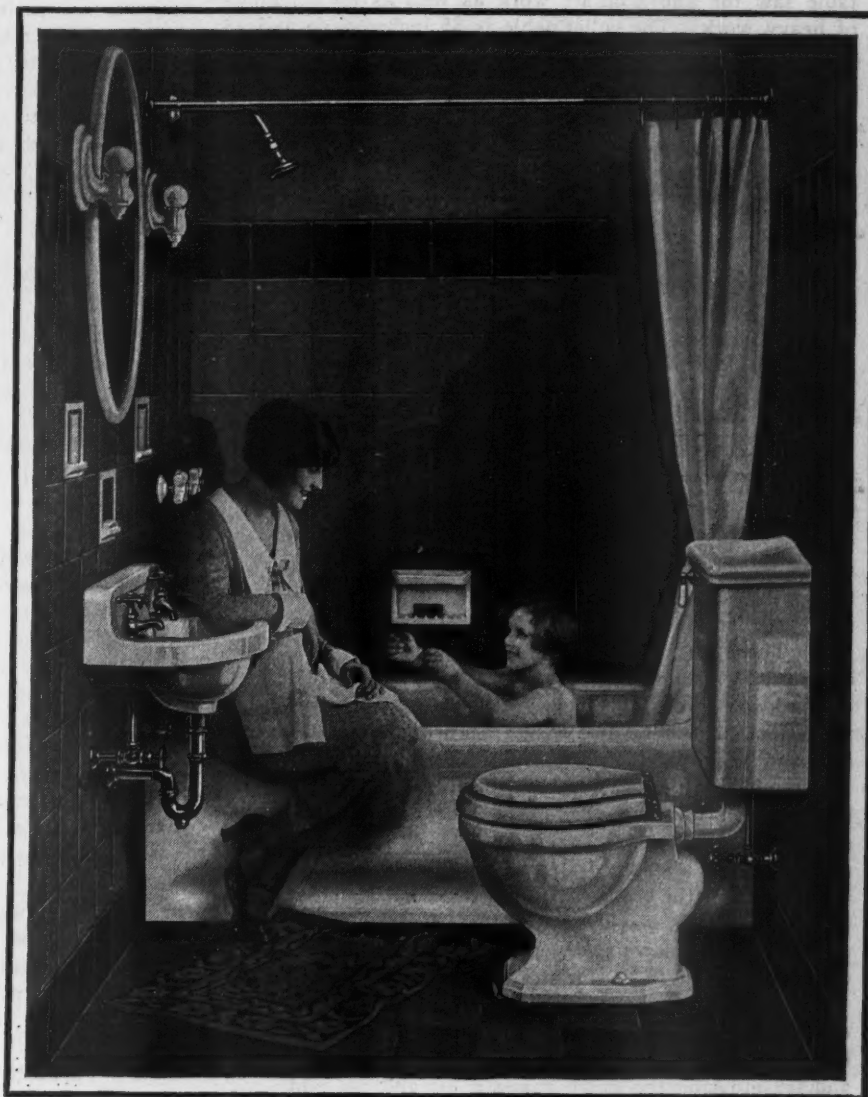
And your customer knows what "Standard" means. For more than forty years national advertising has established "Standard" Plumbing Fixtures as serving family health and comfort, wherever people use bathrooms, kitchens, laundries.

Ten factories, three on the Pacific Coast. Showrooms, branches, warehouses in more than fifty cities from coast to coast.

You can profit by this far-reaching service and organization with a "Standard" catalogue at your elbow. Write for copy on your business letterhead.

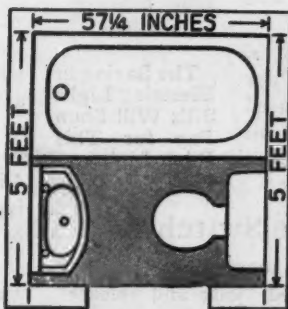
Standard Sanitary Mfg. Co.

General Offices:
PITTSBURGH



The "Standard" Five Foot Square Bathroom—complete, full-sized, comfortable. Ample for the smaller home of moderate cost, or to meet the modern requirement for extra bathrooms in a minimum of space.

"Standard" PLUMBING FIXTURES



This shows how compactness is gained in the Five Foot Square Bathroom without sacrificing serviceability.

An Inexpensive Roll Table Saw

A NEW rip and cut-off saw with roll top table was designed to meet the requirements for an easily operated, reasonably priced and durably constructed roller table saw for fine accurate work as well as for all kinds of heavy work. The roller table is 35 inches wide and 58



Quality at Low Cost Was the Aim in Designing This Roll Table Saw for Fine as Well as Heavy Work.

inches long with a travel of 23 inches. It is built of seasoned, laminated, hard and soft wood strips cleated to prevent warping and with "V" shaped tracks on the under side. These tracks ride on adjustable grooved rollers operating on "V" shaped tracks on the main frame. The ends of the lower tracks have curve stops which keep the rollers in perfect alignment and insure accuracy. It is frictionless and requires no lubrication.

A removable throat, five inches wide and full length can be taken off for using dado heads or to be used on the saw arbor. The saw arbor, supported by heavy bearings, is mounted on a strong frame at the rear of the saw and is adjusted from the front of the machine by a slotted quadrant. It can be quickly raised and lowered for different thicknesses of material by means of a convenient hand wheel or may be locked in any position.

The saw is equipped with ripping, mitering and cross-cut gauges. In cut-off sawing the material moves with the roller table, for ripping the table is securely locked and for mitering the mitre gauge is set and the table, with the work, moved up to the saw as for cross-cutting.



Pilot Light Reminder

HOW often we go to the basement or attic and then leave forgetting to turn off the lights, with the result that they are left burning all night. It is a waste and expense which all of us would like to avoid but, since memory is never infallible, we need something to act as a reminder. That is where a new pilot light comes to our assistance. It is attached to, and connected with, a switch so that when the switch is "On" the light is "On," and vice-versa.

These lights are made in various sizes, shapes and finishes but the most popular type is the one-gang kind. It can be used in any box where both sides of the circuit enter and comes ready wired.



Square Handle Toggle Switches

A NEW line of square handle toggle switches are equipped with a new, simplified "lock and release"

mechanism. The handle of the switch operates directly on the lock and release movement instead of through a secondary member, resulting in an action which is exceptionally smooth and positive.

These square handle toggle switches are made in single pole, double pole, three-way and four-way types. The single pole and double pole switches have an indicating feature on the handle which indicates when the switch is "on" and when it is "off."



A New Type of Square Handle Toggle Switch.



Economical Composition Flooring

A FLOORING tile, which possesses a number of qualities that make it particularly desirable for large floors subjected to severe wear and where economy is a more important consideration than smartness, is an importation from Europe. It can be installed in small plates laid, tile fashion, in magnesia mortar, or in large plates, 39 3/8 inches square, bedded in mortar and screwed down with tinned iron screws.

This flooring is composed of an approximately equal mixture of wood and mineral substances formed under a hydraulic pressure of 6,000 pounds per square inch. Because of this high pressure it is equally dense and of uniform texture. It combines many of the advantages of both wood and stone. It can be worked like wood, that is sawed, planed, filed and so forth but its specific hardness is double that of the best hard woods. It is warm to the feet, resilient, a good insulation against heat and sound and is dust proof. In regard to fireproof qualities, durability and resistance to weather and other physical and chemical influences, it ranks with the best basalt stone.

While this material does not require any oiling or varnishing for its upkeep, it may be painted or oiled and it will not stain or absorb water or other fluids in any appreciable quantities. It does not shrink or swell, break or crack with variations of temperature and affords absolute security against fungus and termites. It is easily cleaned and disinfected.

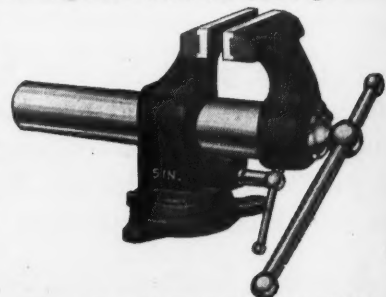


Steel Drop Forge Bench Vise

A NEW vise that is made entirely of drop forgings, excepting only the handle, is now available. Each part is machined to be interchangeable with the same part on any other vise of the same size. The jaw plates are knurled and forged under the hammer and doweled onto the jaw. Thus it is possible to replace the jaw plates, which are naturally subject to wear.

This vise is lighter in weight than the old-fashioned cast-iron type. It is made with a swivel base and wedge lock that is quick to set and automatic in tightening up, and has a grip that cannot shake or break loose. It is also made in the stationary type and comes in four sizes—3-inch, with jaws opening 5 1/2 inches; 4-inch, with jaws opening 6 inches; 5-inch, with jaws opening 8 inches, and 5-inch heavy duty, with jaws opening 8 inches.

Each vise is sold under a full and unconditional guarantee on each part excepting jaw plates.



Here Is a New Bench Vise Made Entirely of Drop Forged Steel Except for the Handle.



The Saving in Electric Light Bills Will Soon Pay for This Pilot Light.



T. A. Curtis, Montclair, N. J., built this house for himself. He used Celotex Insulating Lumber on inside walls in place of lath. Plaster is applied directly to the surface of Celotex, forming a stronger wall than lath and plaster—and a wall that stops heat, deadens sound and is free from lath marks.

Look ahead! Heat-leaking houses are going out-of-date

Leading contractors and builders agree that the practice of building heat-leaking houses is soon to end. Many say in five years. But it may be only four, or three, until heat-leaking houses will be shunned or remodeled or on the market as "bargains." Nobody will want to live in them.

Certainly nobody will *think* of building such a house, now that Celotex Insulating Lumber has made it *practical* to build homes winter-warm, saving of fuel, summer-cool, stronger.

Progressive builders are *looking ahead*. They are using Celotex to help get more business and to establish their reputations for building better houses.

Great advantages—little or no extra cost

Celotex adds practically nothing to the cost of building because it replaces other materials.

(1) Used as sheathing, Celotex replaces wood lumber. It is actually stronger in wall sections than wood sheathing. (2) It makes building paper unnecessary; because Celotex effectively stops wind and moisture. (3) Used on inside walls, under plaster, Celotex takes the place of lath. Plaster is applied directly to its surface. (4) It also eliminates the use of deadening felt; because Celotex deadens sound. (5) *And*, wherever used, Celotex provides insulation value equal to the best. It is the *only* effective insulation which provides great strength in wall sections and is not an extra item in the building.

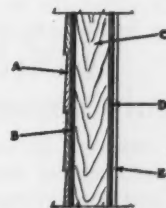
Celotex is economical to apply, too. The broad, strong boards can be sawed and nailed easier and faster than wood lumber; and with less waste of material.

Free specifications
Ask your architect and lum-

ber dealer to tell you more about Celotex. All lumber dealers can supply it. Leaders in these lines advise its use.

And send the coupon below for complete details that show you just how to use Celotex Insulating Lumber, and its many advantages to you as a builder.

THE CELOTEX COMPANY
CHICAGO, ILL.
Mills: New Orleans, La.
Branch Sales Offices in many principal cities.
(See telephone books for addresses)



A. Stucco, brick or siding (write for specifications)
B. Celotex Insulating Lumber
C. Studding, or framework
D. Celotex Insulating Lumber
E. Plaster
Cross-section showing application of Celotex Insulating Lumber: (B) in outside wall as sheathing, where it replaces wood lumber and building paper, and (D) on inside walls, where plaster is applied directly to its surface.

CELOTEX

INSULATING LUMBER

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

THE CELOTEX COMPANY, Dept. T-141
645 N. Michigan Ave., Chicago, Ill.
Send the Celotex Building Book and Specification Book.

Name.....

Street.....

City.....

State.....

Private Garage Door Opener

FOR a long time home owners, architects and contractors have been looking for the appearance of a device to open and close garage doors automatically which would be simple enough in construction to be safe to install in residence garages and yet would be cheap enough to be within reason. Such an apparatus has recently appeared. It is electrically operated.



A Dependable, Automatic Opener for Private Garage Doors Which Should Prove a Great Convenience.

The doors are both opened and closed by the pressure of a car wheel on a ground plate switch in the driveway and by a push button placed on the wall of the garage. The mechanism is designed primarily for residence garages and all complicated parts, which are sources of trouble in electrical appliances, have been done away with. There are no magnetic brakes, reversing switches or

other parts of this sort to get out of order and cause trouble and make the services of a skilled mechanic necessary. The mechanism does not even require lubrication at any time and once installed can be forgotten as far as giving it any special care or attention is concerned.

The plate in the driveway consists of a cast iron frame with two hinged lids which when sufficient weight is applied depresses a spring and operates a switch. This plate is not affected by rain, mud, ice or snow and works just as well in the winter as in the summer. The mechanism, which is attached to the doors, is extremely simple, rugged and fool-proof. It is powerful enough to open and hold the doors in any wind and to sweep back ordinary snowfalls. It is operated by a $\frac{1}{2}$ -horsepower motor and gets its great power from this small motor through a 1,500 to 1 gear reduction.

The apparatus is designed for swinging doors, as this type is simplest mechanically. The ordinary disadvantage of swinging doors has been overcome by the electric mechanism which will open them and hold them securely in any wind.

The installing of this apparatus is extremely simple and the cost is small, since any electrician can install it in a day or less.

Permanent Cement Colors

SINCE the use of concrete in construction work has become so extensive, cement colors have been more and more in demand and for satisfaction and permanence only the best should be used. A line which has been thoroughly tested by long and extensive use offers a wide variety of colors and shades from which to select. These colors consist very largely of metallic and mineral oxides with such foreign matter eliminated as would be likely to detract from the quality so that nothing enters the concrete which would eventually injure it, or which will hold or absorb an excess of moisture.

These colors are not injuriously affected by the caustic action in cement or by atmospheric or climatic action and therefore are reliable under all known conditions. They are entirely free of all artificial coloring matter or other ingredient which will give a heightened finish when used but which will eventually lose its effect.

The manufacturers also claim that when properly used these colors tend to increase the bind and strength of the concrete as well as help make it waterproof.



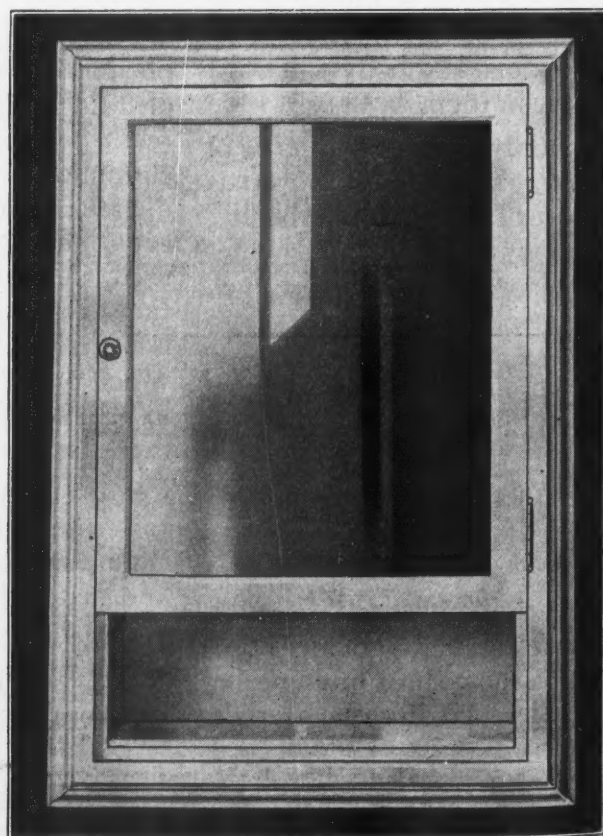
A New Steel Medicine Cabinet

ORIGINALLY designed for one of the large new hotels, which is now under construction, a new steel medicine cabinet of high grade construction has already attracted much attention and been adopted for installation in a number of other hotels. The distinguishing feature of this cabinet is its frame, which is made from a delicately designed drawn steel molding. The corners are carefully mortised and accurately matched to form perfect unions. They are torch welded from the inside to make smooth and rigid joints.

The door, made with one piece back of heavy gauge steel, held in place by only two screws, fits flush with the front of the moulding. The 16 by 20-inch mirror is of heavy polished plate glass and can be removed or replaced by taking off the one-piece back. The door is equipped with a crystal glass knob and concealed bullet latch.

Inside the cabinet there are three adjustable, roll edge, glass shelves which may be placed in any of six positions. The edges of these shelves are smoothly rounded and are slightly thicker than the centers to prevent small objects rolling off, which also increases their strength. Below the door is an open recess shelf space $17\frac{1}{4}$ inches wide, 6 inches high and 4 inches deep, with a heavy glass bottom. The over-all dimensions of this cabinet are $22\frac{3}{4}$ inches wide, 33 inches high and $4\frac{3}{4}$ inches deep.

Stock cabinets are finished in four coat white enamel, which is stainless and presents a glossy surface. With extra time allowed for delivery, these cabinets can be supplied in any finish to match tile, woodwork or plaster without additional cost.



This High Grade, Steel, Medicine Cabinet Was Especially Designed for One of the Big New Hotels and Is Proving Popular for Other Installations.

Free!

SHERWIN-WILLIAMS DECORATIVE SERVICE FOR BUILDERS

IF you build houses to sell you know the importance of beautiful, harmonious color schemes—inside and out.

Use our free Decorative Studio Service—give us a description of the building on our specification sheet so that we can make intelligent recommendations. The specification sheet will be sent to you upon receipt of the coupon printed below. We make no charge for this prompt and valuable service. There is no red tape. If you paint only the outside and finish only the woodwork inside, this service will be very valuable in promoting sales. If you decorate the walls of the rooms it will be even more valuable.

Make free capital of the fact, when offering the house for sale, that its decorations have been directed by the Sherwin-Williams Decorative Studios.



SEND in the COUPON TODAY
*and secure this expert
help free of charge.*

The Sherwin-Williams Co.,
407 Canal Road, Cleveland, O.

Send me your specification sheet. I am

building _____

(fill in kind of building or buildings)

and would like to receive suggestions from your Decorative Studios. It is understood that you make no charge for this service.

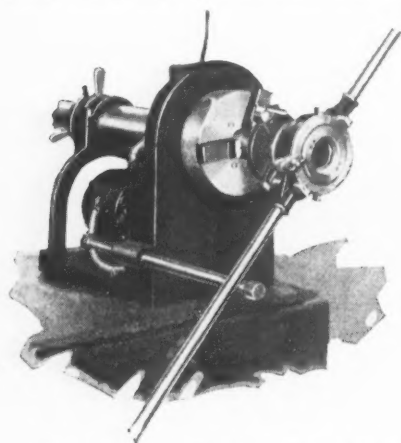
Name _____

Street _____

Place _____

Portable Electric Power Drive

A NEW portable electric machine recently has been developed for regularly cutting and threading $\frac{1}{4}$ to 2-inch pipe, using any type or kind of hand-operated die stocks



This Power Drive Practically Makes Power Machines of Many Hand-operated Tools.

or pipe cutters. A universal sliding extension shaft is furnished, however, to cut and thread up to 6-inch pipe, inclusive, using geared die stocks or cutters.

The operation of the power drive is simple. The pipe is inserted in the machine and rigidly held by a universal chuck. The die stock or pipe cutter is placed on the pipe as when cutting or threading by hand. The handle of the tool rests on a sliding bar at the side of the machine. When the current is turned on the pipe revolves while the tools stand still.

By using any type or kind of die stock or pipe cutter this power drive virtually makes power machines of hand-operated tools. It is also used to make up fittings right in the machine, instead of by hand, thus performing a complete job of cutting, threading and fitting without removing the pipe from the machine.

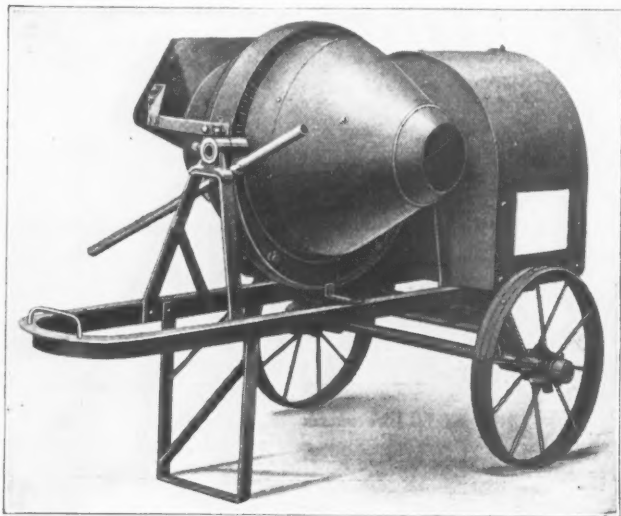
It is easily portable, weighing only 230 pounds. It is regularly equipped with $\frac{1}{2}$ horsepower heavy duty, 110-220 volts, A. C., 60 cycle, single phase motor and is operated from an ordinary light socket.



Two Mixers and a Paver

A PROMINENT company which is an exclusive manufacturer of concrete mixers, will include in its exhibit at the 1926 Road Show a new six-bag paver, a one-bag tilting mixer for bridge and culvert work and a small trailer type tilting mixer for small repair work.

The new paver retains all the well-known advantages of sturdy construction, fast mixing and discharge and easy handling with several new refinements. The well-known



A New Small Trailer Type of Mixer on Pneumatic Tires for Quick Hauling on Small Jobs.

type of motor has been adopted; the over-all width reduced to make it the narrowest of any paver and particularly suitable for half width road and alley paving; the hoist drum grooved to prevent climbing of the cable; the skip saddle changed to structural steel to give it greater resistance to twisting, and a new $3\frac{1}{2}$ -inch water valve added to give the fastest discharge of the water from the measuring tank to the mixing drum of any paver.

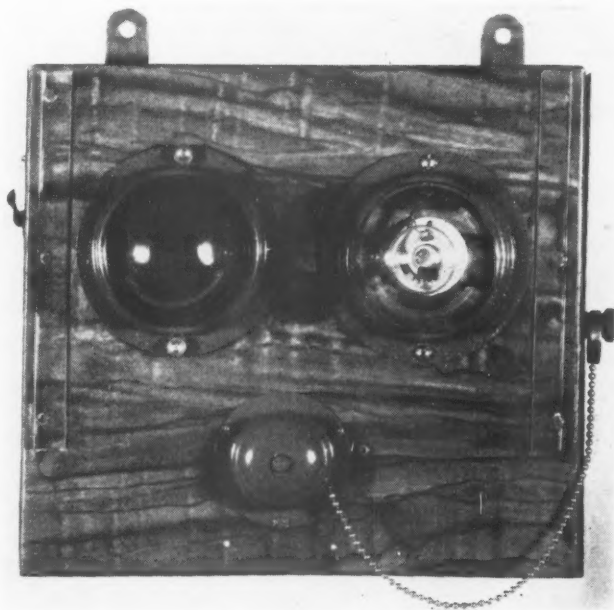
The tilting mixer is designed for use by road and bridge contractors, in construction of culverts and bridges which are usually built of concrete of the same proportions as specified by the highway departments for the road slab. Under these proportions usually not leaner than 1-2-4 this mixer will hold a one-bag batch meeting the requirements of the engineers that nothing smaller than a one-bag mixer be used and providing a small easily handled mixer for the contractor.

The other mixer is of the trailer type on pneumatic tires, designed for high speed hauling. It is a convenient size for small concrete and cold patch bituminous repair work.



A Dependable Emergency Light

THE question of an economical, efficient and dependable emergency and exit light has been a problem for many architects, engineers, hotel, theater and factory builders. Such a lamp is now procurable. It is an individual lighting



An Automatically Tested Emergency Light Which Is Always Dependable Is Particularly Valuable for Exit Lights.

unit for connection to regular light circuits and requires a 15 to 40-watt incandescent bulb, depending on voltage of regular circuit. In event of failure of regular circuit a relay is so arranged that another circuit is instantly and automatically established with a 4-volt battery and a second bulb of 4 to 50-candlepower capacity.

One feature of this lamp is that it is automatically tested each day when main bulb is switched on as switch first lights a small bulb and cannot be thrown over to light the main bulb if auxiliary circuit is not in good order or battery is discharged.

The operating mechanism and battery are all enclosed in a steel cabinet measuring $10\frac{3}{4}$ inches wide by $9\frac{1}{2}$ inches high and $3\frac{1}{2}$ inches deep and is finished in any color desired. Provision is made to use the lamp as an exit light by sliding a stamped steel plate in front of case with letters (EXIT) 6 inches high backed by red glass.

Put labor costs at rock bottom with Carney



Fred Lyon has used Carney
for 16 years.

Fred D. Lyon, General Superintendent of McClellan & Junkersfeld, St. Louis says:

"It is with a great deal of satisfaction that I express my approval of the use of Carney Cement for brick and tile mortar.

During the past sixteen years, it was my experience to have used the cement on numerous buildings, such as the Field Museum of Natural History and a number of other buildings and Power Stations in Chicago; also on the Cahokia Power Plant here at St. Louis, the Carney Cement was used, and has given satisfaction in every respect."

HAVE you ever thought of the time a mortar mixer spends in preparing lime and mixing it with cement?

Have you ever stopped to consider the amount of time the average mason spends tamping bricks and tempering mortar on a wall?

Multiply this time by the hour rate and the number of men on the job, and you'll find unproductive labor effort a mighty big factor in determining net profits.

This dead loss can be prevented with Carney. Here's a cement that's all ready to mix. No lime is needed—soaking is unnecessary. Besides, Carney is slower setting and very plastic. These qualities eliminate tamping and tempering—they enable every mason on a job to show a decided increase in bricks laid.

Put your labor costs at rock bottom—let Carney put this wasted, costly energy on a productive, profitable basis.

THE CARNEY COMPANY

District Sales Office: Cleveland, Chicago,
Detroit, St. Louis and Minneapolis.

Specifications:

1 part CARNEY
to 4 parts sand.

Cement Makers **CARNEY** *Since 1883*



CARNEY

for Brick and Tile Mortar

A New Sanding Machine

THIS machine is particularly useful for sanding flat or bent work on the drum and for general disc sanding. The drum is 13 inches in diameter and has a 16-inch face, with



For Sanding Flat or Bent Work as Well as for General Disc Sanding This Machine Will Prove Highly Satisfactory in Operation.

groove and clamping strip to hold and stretch the sandpaper and carpet. One end of the carpet is fastened to the drum, the other end being clamped with the paper. The drum table is 21 inches by 32 inches, with a suitable opening for the drum. It may be adjusted, by means of screws, to the required position for flat sanding and may be removed for sanding curves.

The disc is 18 inches in diameter and accurately turned and balanced. The disc table is 10 inches by 25 inches and is adjustable to any angle up to 45 degrees in either direction. It is fitted with a groove and mitre fence for sanding angular work.

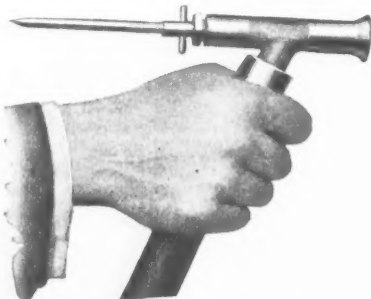
The main frame is cast in one piece of sufficient weight and strength to prevent vibration. The arbor runs in ball bearings and is regularly equipped with a pulley six inches in diameter and having a 4-inch face. A ball bearing, loose pulley is furnished, when required, at extra cost. This machine is also furnished, on order, with motor mounted on bracket with direct connection to arbor at the drum end.



Hose Nozzle and Sprinkler

SOMETHING decidedly new and useful is a combined hose nozzle and lawn sprinkler which has recently been placed on the market. This appliance gives a greater convenience in combining the two articles in one and makes them available at the price of one. It is not necessary to take the nozzle off the hose to use it for sprinkling. Just stick the spike in the ground and turn on the water. A simple adjustment permits anything from a straight stream to the finest spray or the water may be entirely shut off at the nozzle.

The hose is attached to this nozzle



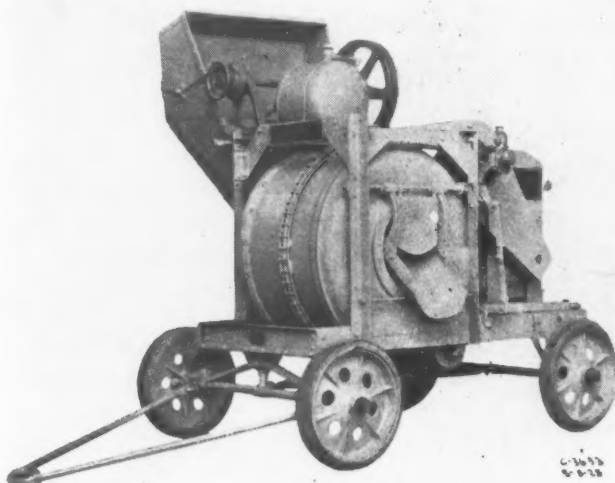
This Combination Nozzle and Sprinkler Is Decidedly New and Useful.

at an angle which avoids the chance of kinking the hose. The spike, which is an integral part of the nozzle, enables one to direct the stream at any angle and it may be changed from one position to another without turning off the water.



A New Full Bag Concrete Mixer

A NEW concrete mixer in a brand new size, designed from the ground up to fill a new field as a full bag mixer on a 1-2-4 mix, has just been announced. The machine has many new features and improvements which



An Improved, New, Full Bag Mixer Which Was Designed to Fill a New Field and Has Been Thoroughly Tested.

were developed through field tests extending over many months. Its capacity is 5 feet of mixed concrete, has a wheel base of 64 inches and weighs 2,950 pounds when equipped with power loading skip. The light weight has been made possible through extensive use of certified malleable castings.

Among the outstanding features is a knockout device which automatically throws out the clutch when the charging skip has reached its height. Grooved winding drums and a strong pivot shaft were designed for smoother and quicker loading action.

Power consists of a 4-horsepower gasoline engine. The engine is hopper-cooled and has a device which automatically fills the tank with water. The new machine is equipped with steel roller chain drives which provide smooth operation and longer life for the mixer.



Waterproofing for Concrete

AN integral, concrete waterproofing compound which has stood up under tests running over a long period of years possesses qualities which make it highly desirable in many types of construction work. This compound is semi-liquid in form and its use does not increase the labor cost. It is merely mixed directly with the concrete or stucco to make it waterproof.

Tests have shown that it does not decrease the tensile strength of concrete but, on the contrary, actually increases it. A one-inch slab of concrete treated with this compound failed to show penetration after a 30-day, under-water test. It is particularly recommended for preventing leakage through foundations of large buildings, for stuccoed exteriors which may deteriorate from leakage, for residence basements to prevent dampness, for concrete floors in industrial buildings where liquids are spilled, subway construction, retaining walls and swimming pools, floors and walls of bathrooms, comfort stations and tanks, for concrete into which tile is laid.

Announcing

NEW PRICES NEW PRODUCTS *and* NEW BUSINESS

IN A VERY SHORT TIME we shall have the privilege of announcing to our friends and patrons in the building profession a new scale of prices on IDEAL Boilers and American Radiators.

Also there will be announced additional IDEAL products which open a new and vastly larger field of service to the public.

To the members of the building profession, this means a greater opportunity to render more and better service to the public—and, by the inevitable law of compensation, to enjoy a New Year of steadily increasing profits.

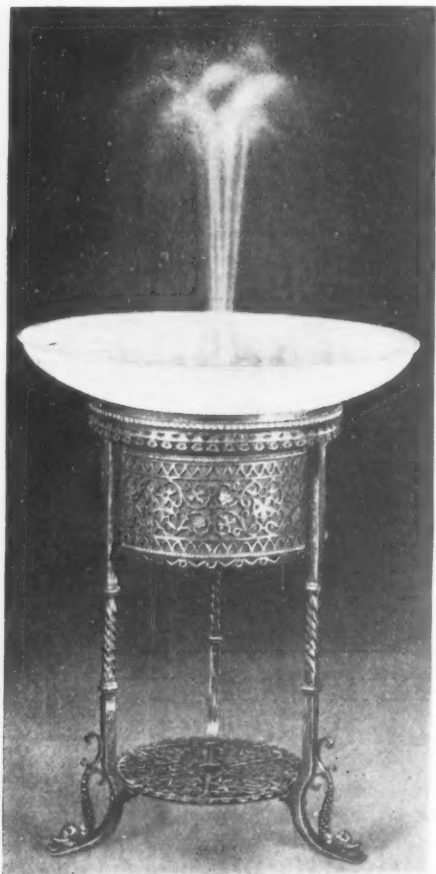
AMERICAN RADIATOR COMPANY

Showrooms and sales offices: New York, Boston, Providence, New Haven, Newark, Philadelphia, Baltimore, Washington, Richmond, Buffalo, Pittsburgh, Cleveland, Detroit, Cincinnati, Atlanta, Chicago, Milwaukee, Indianapolis, St. Louis, St. Paul, Minneapolis, Omaha, Kansas City, Denver, San Francisco, Los Angeles, Seattle, Toronto, London, Paris, Milan, Brussels, Berlin

Makers of IDEAL BOILERS and AMERICAN RADIATORS

Portable Electric Fountains

PORTABLE, electric fountains, one of which is illustrated here, are adapted to display on dining and banquet tables, in vestibules and halls, hotel and theater lobbies, sunparlors and conservatories. Besides being highly ornamental they are an aid to health because of the fact that they act as indoor humidifiers and also as dust and germ collectors.



Many Designs, Both Stock and Special Can Be Obtained in These Portable Electric Fountains.

No water connection is required for installing these fountains as the self-contained water supplied is used over and over again. It is only necessary to provide electric current which can be taken from any ordinary lamp socket.

These fountains are made in a wide variety of designs for varied purposes. Some are made in combination with auto-operative color changing and water display, some in unity with aquariums, console-wall and wall niche patterns, and with statuary embodied, spouting, shooting and spraying water in color-changing performance. In addition to the many stock designs available, special designs are developed to meet individual requirements and special decorative plans.



Crawler Track for Tractor

THE crawler track for Fordson tractors which is shown in the illustration offers three distinguishing features which particularly adapt it for service wherever a wheel type tractor is impractical. The first of these is an automatic spring release which automatically prevents tread breakage and all undue strains on the entire mechanism of the tractor. Strain on the differential is eliminated by



This Crawler Track for Fordson Tractors Will Prove Its Worth Wherever a Wheeled Tractor Is Impractical.

the use of a multiple disc clutch control. The third feature of this equipment is found in the spring cushioned rear hubs. Good traction is obtained under the most difficult tractive conditions through 900 to 1,000 square inches of ground contact.



High Grade Inexpensive Borer

THIS motor-driven, horizontal boring machine has been designed to fill the need for high grade, accurate machines at a price within the reach of anyone. It is built of the best materials with care as to detail of design and workmanship and is furnished with $\frac{1}{2}$ horsepower or 1 horsepower, ball-bearing motor. Power is taken from an ordinary lamp socket or, where preferred, a power line motor is furnished at the same price.



The main frame is a heavy, stiff, one-piece casting and the standard table has an in and out movement of six inches. Separate, adjustable stops regulate both inward movement and backward movement. The table is a heavy casting, accurately planed and rigidly mounted. Mounted on the table is a hardwood fence which is easily adjusted up and down.

A Boring Machine Priced Within the Reach of All, But Built of the Best Materials with High Grade Workmanship.

A foot treadle provides for feeding the work to the bit and is adjustable for different heights of table. Portability is provided by means of a truck type base. When the handle at the back is thrown against the column the machine rests solidly on the floor; when it is pulled forward in position to act as a handle, a cam action lifts the weight from the two stationary feet at the back and places it on a swivel roller bearing so that one man can move the machine. Lag screw holes are provided when it is desired to have the machine in a permanent position.



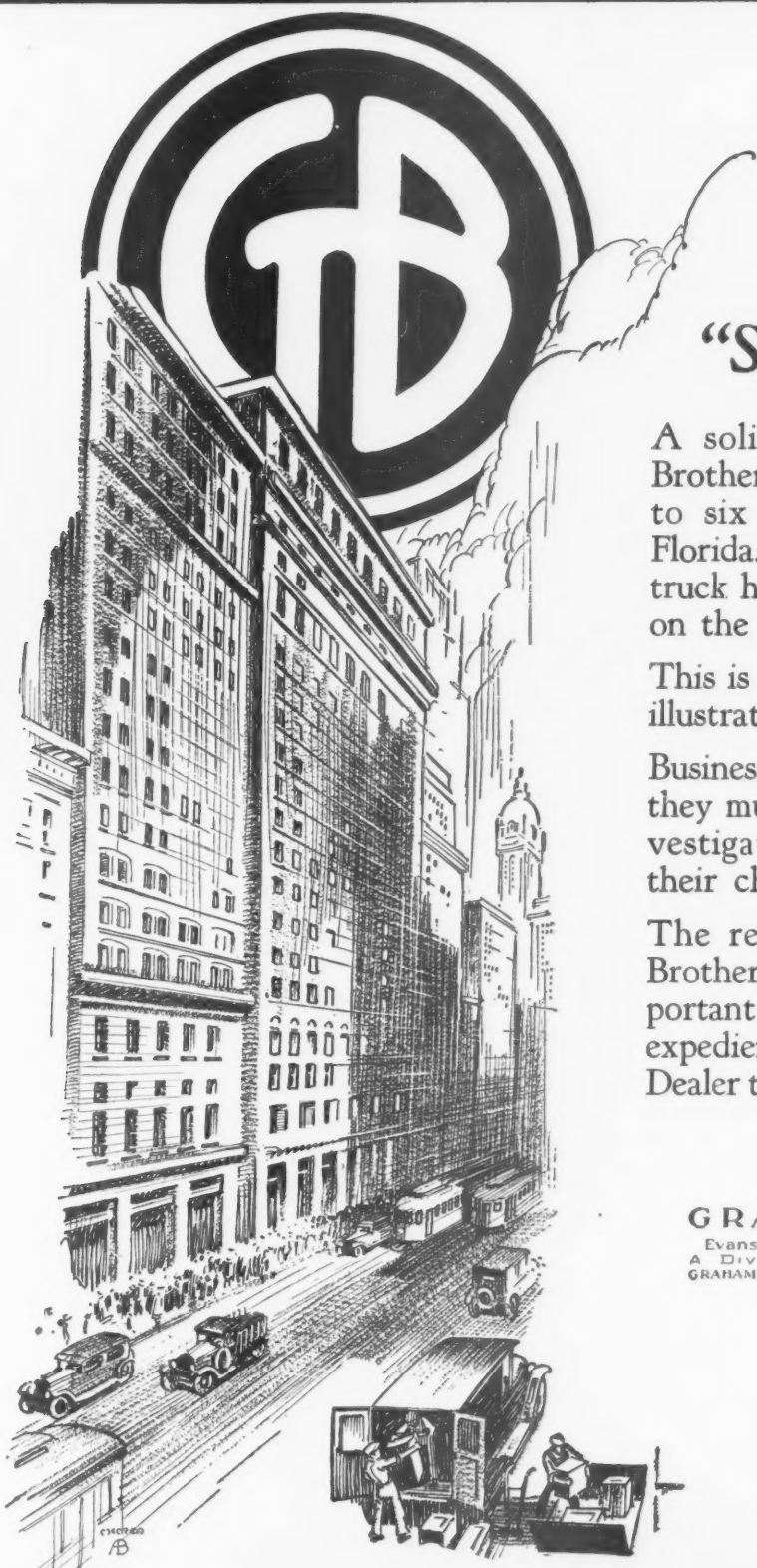
Embossed Linoleum Tile

A NEW embossed tile inlaid linoleum has been placed on the market by a well-known manufacturer and eleven artistic patterns are offered. It is claimed that this is the highest development yet reached in the art if linoleum design and effects never before thought of in connection with linoleum have been developed.

Some of the features of these embossed, handcraft linoleum tiles are: the design does not repeat regularly, special figured tiles are spotted among the plain tiles at irregular intervals, the "mortar" joints are slightly depressed, thereby accentuating the tiling effect.



"NON-ESSENTIALS and wasteful features, wherever used, produce complicated construction, inappropriate use of materials and dollar waste."



"Send One Over"

A solid trainload of 104 Graham Brothers Trucks was shipped recently to six Dodge Brothers Dealers in Florida. Ten days after arrival every truck had been sold—and more were on the way.

This is an exceptional record—but it illustrates an important point.

Business men need no longer feel that they must devote valuable time to investigation of trucks before making their choice.

The remarkable record of Graham Brothers Trucks has reduced an important buying problem to the simple expedient of asking the Dodge Brothers Dealer to "send one over."

GRAHAM BROTHERS

Evansville - DETROIT - Stockton
A DIVISION OF DODGE BROTHERS, INC.
GRAHAM BROTHERS (CANADA) LIMITED - TORONTO, ONTARIO

GRAHAM BROTHERS TRUCKS

SOLD BY DODGE BROTHERS
DEALERS EVERYWHERE



CORRESPONDENCE

Questions Answered—Ideas Exchanged

The How and Why of Fireplaces

To the Editor:

Long Prairie, Minn.

Last winter I decided to build a fireplace in my cottage at a lake and asked one of your subscribers, Mr. E. M. Berg of this city, where to find out the real how and why of fireplace building. He gave me one of your magazines containing full instructions for doing the stunt and the results have been most gratifying. This was in the June, 1921, issue, I believe.

To begin with, I procured the services of a rather crude bricklayer who had never built a fireplace in his life. This was done to avoid argument with the man who always "knows." Every instruction was carried out to the letter and we have a fireplace that does not smoke the least bit, draws very well and heats splendidly. Feeling under obligations to you and your magazine for the result, I am taking your time to accept my thanks for the same.

Since making a study of the fireplace made of proper proportions, I am surprised to find what a large number there are that are built wrongly. One very nice home in town has an expensive fireplace that is not worth a nickel except as an ornament, lots of smoke and no heat.—H. P. HANDY, D. M. D.



Advertising in Missouri

To the Editor:

Carrollton, Mo.

We are sending you a picture of an advertising float that we recently used, the occasion being the dedication of a new bridge across the Missouri River at Waverly, Mo. This bridge, together with 12 miles of concrete highway between Carrollton and Waverly, had just been completed. There were more than 50 floats in the parade, besides hundreds of automobiles, but a great many people considered our float the best.—J. E. WADDILL, J. E. Waddill Lumber Co.



Here Is a Float Which, When It Appeared in a Recent Parade, Attracted Much Favorable Comment for a Missouri Building Material Dealer.

A Problem in Building Economy

To the Editor:

Columbus, Ohio.

I have been an interested reader of the AMERICAN BUILDER for some time and I find that it is a very valuable magazine for one who believes in keeping up with the latest developments in building equipment and methods. There is one branch of the building industry, however, which, I am sorry to say, does not make very general use of the up-to-date methods and machinery advertised and advocated in your magazine. I refer to the construction of small houses. It is along this line that I would like to ask you a question that I have been unable to get answered elsewhere.

The question is: Why are there no large or moderately large corporations engaged in the building of small homes in the larger towns and cities? By this I mean modern, efficient, responsible business organizations, owning and operating all the tools and equipment for doing all the work connected with the erection of these houses from the excavating to the interior decoration; in other words, organizations which build houses along the same industrial lines as automobiles or almost any other manufactured articles are made. Of course, it is easy to see why there are no such concerns in the smaller places, but why not in cities of 100,000 or more population where hundreds or even thousands of houses are built annually?

In this city the people are furnished with nearly every necessity of life by large up-to-date business organizations headed by big men. There are department stores, power and light companies, transportation companies, ice and fuel companies and chain groceries having millions of capital invested and controlled by able men. There are large and efficient organizations for the building of the larger buildings but, when it comes to the erection of the homes and the small apartments, in which the majority of the people live, we find that small business, controlled by small men is in almost undisputed possession of the field. Most of these concerns have very little investment in working capital or equipment and apparently less brains.

I do not include in this planing mills, plumbing and heating, and electrical companies who often have considerable investment, but the man in charge of the actual erection, the average general contractor or builder of small homes and small buildings. He is usually an ex-carpenter or bricklayer, a good mechanic, no doubt, but totally lacking in business ability and knowledge of good management. He contracts a house and with the exception of the work with which he is most familiar he will sub-contract everything to others. He often has several houses under construction at once or in case he has only one he will probably work in the same gang with his men. In either case there is a lack of close supervision and co-ordination between different parts of the work. Lack of capital forces him to do everything by expensive hand labor.



“Special Delivery” to the Building Trade

The American Hard Wall Plaster Co., of Utica, N. Y., tells a story about the Ford one-ton truck which accords with the experience of hundreds of other concerns engaged in the building material business.

“We have had our Ford truck, on which is mounted a dump body, in

operation for two months. We want you to know that we are well pleased with this equipment. It has become almost indispensable in augmenting and speeding up our delivery service.”

Speed, reliability, low first cost and small operating expense have won popularity for the Ford truck in every kind of business.

Ford Ton Truck
with Express
Body

Closed Cab

\$505

f. o. b. Detroit

Your nearest authorized Ford dealer will gladly demonstrate a Ford truck to you and show you its many points of superior usefulness.

Ford Motor Company

Detroit, Michigan

Ford

CARS • TRUCKS • TRACTORS



A Convenient Combination of Garage and Office Built by Chas. A. Frost, of Norway, Minn.

Other building firms consist merely of an office force, all the work being done and the material supplied by sub-contract. I have just passed through a rather unpleasant experience with a concern of this kind. The entire permanent personnel of this firm consists of an architect, a secretary and general manager, a field superintendent, a draftsman and a stenographer. For all of the actual construction work and all of the tools and equipment they depend upon sub-contractors whose relations with them are more or less temporary. They act as general contractors and call themselves a construction company, but as far as I know they do not own a dime's worth of construction tools of any description.

The field superintendent has charge of all building operations. He visits each job once a day and stays about ten minutes. All the rest of the time there is no one on the job who is responsible for the job as a whole. There is no general foreman for each job. The result of this is that it leaves the superintendent and the general manager swamped in a mass of detail which they have not even a systematic way of handling. There is almost no co-ordination of the work of the different contractors and very little co-operation. Another prolific source of friction is the lack of planning in detail before the work begins. All details are left to be wrangled over on the job and the result is endless confusion and delay.

There are several other ways in which homes are built in this city, but these two are typical. Hand-to-mouth operations, lack of capital and modern machinery, and sub-contracting without proper supervision are characteristic of all of them, however. The whole idea seems to be to get by without investing anything and to pass the risk along to the other fellow as much as possible.

The smallness of these concerns results in four things:

1. Any irresponsible person can become a building contractor.
2. They have no buying power.
3. They cannot use modern labor-saving machinery.
4. They cannot afford to conduct experiments for trying out better methods and materials.

A corporation such as I mentioned at the beginning of this letter could do the following things:

1. Employ able men as executives.

2. Buy in quantity at much lower prices.
3. Own the latest and best labor-saving machinery.
4. Conduct researches and experiments with the view of improving methods and materials, and lowering the costs of all construction work.
5. Introduce these improved methods into every branch of the work—a thing that cannot be done under the sub-contract system.

Now it looks as if a concern of this kind could build so much better and cheaper than the small outfits that the latter would be forced out. But the fact remains that they are not. I have heard it said that a large company could not compete with the small ones on account of the overhead it would have, but this does not seem to me to be the answer. Look at the overhead that a large department store or chain grocery has that the small one-man store knows nothing about.

There must be something inherent in the business of building small homes that makes it an unprofitable field for large capital. What is it? If you can answer this I will certainly be grateful to you.

ALFRED S. BENNETT.



Combination Garage and Office

To the Editor:

Norway, Maine.

I want your AMERICAN BUILDER for another year, as specified in your letter of recent date. It is the best building paper I know of.

I am enclosing two pictures which may be of interest to your readers. One is a sunparlor on the top of a large house.



This Sunparlor on Top of the House Is Reached by the Stair Seen at the Right.

The other is a building comprising a garage on the first floor and a law office on the second. Both of these I built myself, having been in the building business more than fifty years.

CHAS. A. FROST.



A Blue Ribbon Home

Chesterton, Ind.

To the Editor:

I am enclosing three different views of a home I have built for myself. It is taken from one of your Blue Ribbon Homes appearing in your magazine about three years ago, although I made a few alterations. Have received some valuable ideas from your Blue Ribbon Homes and am now very much interested in your Homes in Colors.—
VERNE L. VEDELL.



This Home, Built by Verne L. Vedell, in Chesterton, Ind., Was Built from an American Builder Blue Ribbon Home Plan.

Make \$25⁰⁰ to \$40⁰⁰ a day Winter and Summer.

**No Dull Seasons
No Lay-Offs
Your Own Boss**

The American Universal Electrically Driven Floor Surfacing Machine offers you the opportunity of a lifetime to get into something for yourself, be your own boss, build up a real business, and make big money for you the year 'round—Winter and Summer.



Do what thousands of others have done. Accept this wonderful opportunity to get behind an electrically driven American Universal Floor Surfacing Machine and build up a big, profitable business of your own. You know as a Carpenter that the real money in building goes to the Contractor. The fellow with the tool box isn't considered when profits are handed out. The carpenter gets his wages, nothing more and he gets that only when he works. An American Universal Floor Surfacing Contractor

Makes \$25 to \$40 a Day

every working day in the year—Winter and Summer, month in and month out, and has no strikes, lay offs, or idle periods to worry him.

Become a floor surfacing contractor right now and start on the road to prosperity, happiness and independence. We have helped hundreds of others get started and will gladly help you. The

American Universal FLOOR SURFACING MACHINE

does the work of six men and earns six men's pay. It not only earns this money for you, but does much better work than can be done by hand. We can point out scores of former carpenters, fellows just like you, who now have a big floor surfacing business of their own, and are making more money than they could ever have made in wages. You need no special training. Any man with good common sense and who is willing to work can take the electrically driven American Floor Surfacing Machine and earn big money and establish a permanent business for himself. Write today or fill out this coupon and we will furnish you, absolutely free, full and complete information in regard to this wonderful opportunity.

The American Floor Surfacing Machine Co.

Originators of Floor Sanding Machines
515 So. St. Clair St., Toledo, Ohio

Cut out and mail this coupon today

The American Floor Surfacing Machine Co.
515 So. St. Clair St., Toledo, Ohio

Please send me, without obligation on my part, full information about the "American Universal" Floor Surfacing Machine.

() I am a building contractor.
() I am interested in becoming a floor surfacing contractor.

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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

INSTRUCTIONS IN ROOF FRAMING

This Department Appears Every Month in American Builder

The Fundamentals Illustrated

By JOHN T. NEUFELD

THE drawings reproduced on this page and page 210 illustrate some the fundamental definitions and principles which must be understood before anyone can hope to make any progress with a study of roof framing. These are all simple but if they are learned and kept constantly in mind, together with other simple principles which will be illustrated later, it will be the first important step in the mastering of this work.

The first sketch shows the framing parts of a gable roof, the plate, common rafter and tail, while numbers two, three and four illustrate the meaning of the terms span, run and rise. The span is the distance across the entire building, and is measured between the outside edges of the plates. The run, on the other hand, is the horizontal distance covered by one rafter. In certain cases the run and the span may be identical, as can be seen by the illustration of the shed roof shown at number six.

In the gable roof, with equal sides, however, the span is always just twice the run. The rise is the height of the upper end of the rafter above the lower end. The rise is measured from the top of the plate to a point on the inner edge of the upper end of the rafter which is found by drawing a line from the outer edge of the plate parallel with the edge of the rafter.

Illustrations number five, six and seven show these measurements for a gable roof, a shed roof and a roof with unequal sides. When these terms are fully understood for the various types of roof it is not difficult to determine the pitch by means of a simple rule or, knowing the pitch and span, to determine the rise of the rafter.

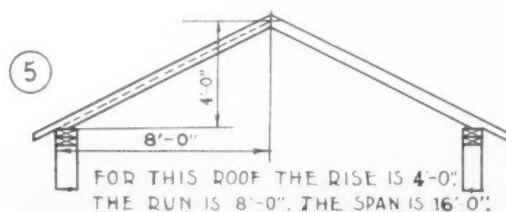
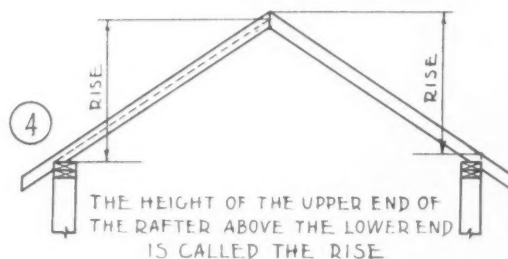
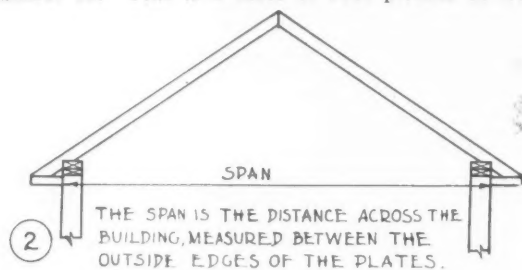
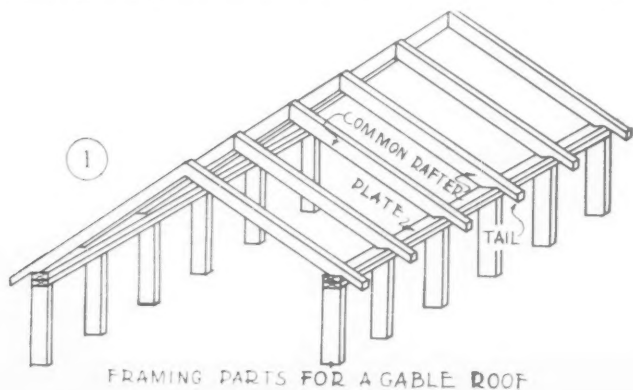
The slope or pitch of a roof depends on the rise in comparison to the span. Where the rise is equal to one-third of the span, as in illustration number eight, the roof is a one-third pitch. Another way of describing the pitch of a roof is by giving the amount of rise in inches per foot run. This method is illustrated at nine, for a roof which has an 11-inch rise per foot of run.

In number 10 a gable roof with a 16-foot span and three-eighths pitch is shown. Since this has a three-

eighths pitch, the rise is three-eighths of the span or six feet. If the rise is six feet, or 72 inches, for eight feet of run, then for one foot of run the rise would be 72 inches divided by eight. Therefore the rise is nine inches per foot of run.

An example of figuring the other way is next shown, at number 11. Here is a roof with six inches rise per foot of run and this means six inches rise for every two feet of span. Therefore the rise is six twenty-fourths, or one-fourth of the span and the roof shown has a one-quarter pitch. These illustrations all show how any factor can be easily found if the others are already known.

An aid to quick figuring is offered in the last illustration, number 12. This is a table of roof pitches in which



There is money

in the roofs of your town

BACKED by the extensive advertising, sales helps, and concentrated selling effort of Johns-Manville, you can build up a very profitable, growing business in roofing right in your own town. You don't have to wait for new buildings to go up. In fact, there is a greater market for you in "Reroofing for the last time"

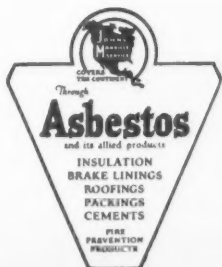
the Johns-Manville way: right over the old shingles.

Let us send you a copy of "The Asbestos Roofer". It is packed with practical suggestions on sales methods which have been tested and found successful by distributors throughout the country. It's a real clearing house for ideas that you can cash in on at once.

JOHNS-MANVILLE Inc., 292 Madison Ave. at 41st St., N. Y. C.

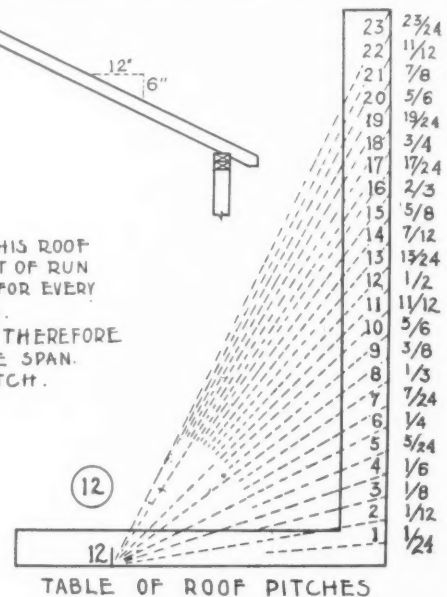
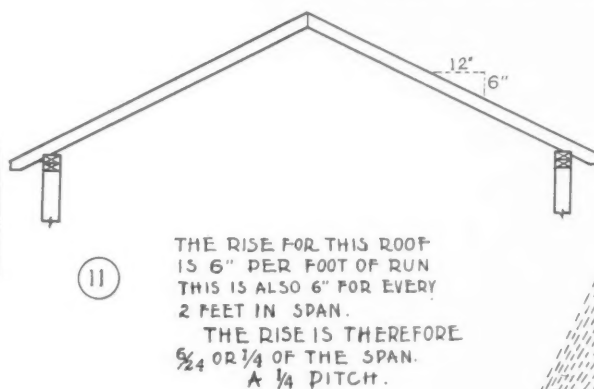
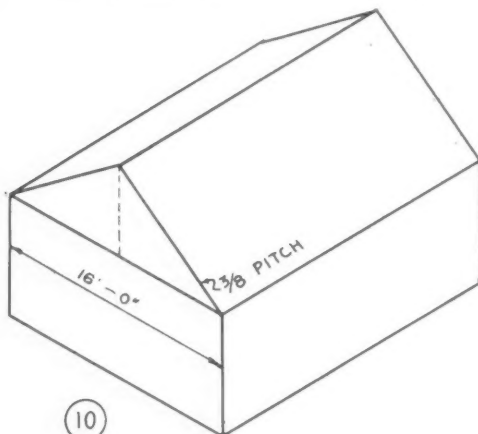
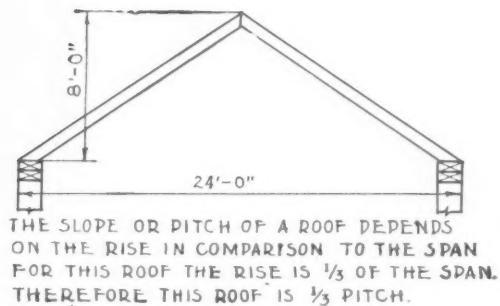
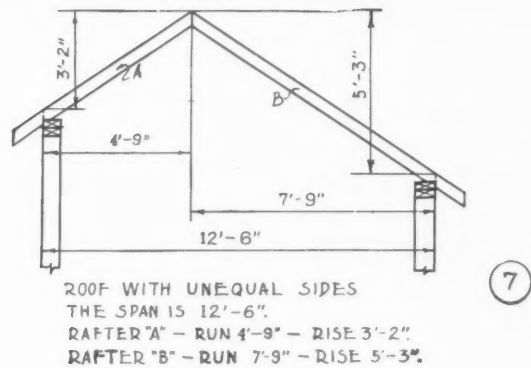
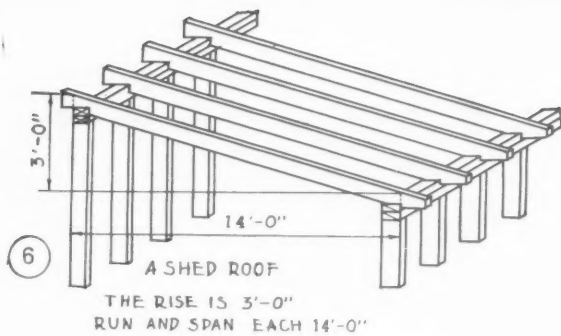
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Asbestos Roofings



various rises per foot of run, from one to 23 inches, are shown and opposite each the corresponding pitch of roof.

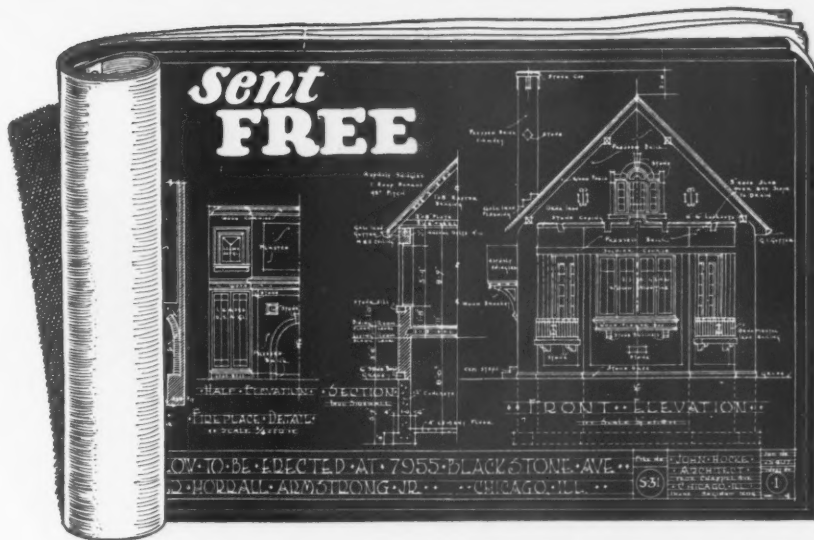
When the points illustrated in these sketches are all understood, one should be able to solve the "Problems in Roof Framing" which are presented below. All the information required can be found on these two pages. Following the problems are correct answers.

Problems in Roof Framing

1. A shed roof similar to No. 6 is 8 feet wide and has a 4-inch rise per foot of run. What is the total rise?
2. A roof similar to No. 8 has a span of 24 feet and a rise of 12 feet. What is the pitch?
3. If the rise per foot is 10 inches, what is the total rise for a roof similar to No. 10, 16 feet wide?
4. If the total rise of a roof is 8 feet and the span is 24 feet, what is the rise per foot run?
5. What is the pitch of a roof having a 7-inch rise per foot run?
6. Which roof is the steeper, a three-fourths pitch or a three-eighths pitch?

Answers

1. If the rise per foot run of a roof is 4 inches and the total run is 8 feet, then the total rise is 8×4 inches = 32 inches = 2 feet 8 inches.
2. The pitch of a roof is the "rise divided by the span." If the rise is 12 feet and the span is 24 feet, then the pitch is $12/24 = \frac{1}{2}$.
3. A roof 16 feet wide has a run of 8 feet. If the rise per foot run is 10 inches, the total rise is $8 \times 10 = 80$ inches = 6 feet 8 inches.
4. If the total rise is 8 feet and the span is 24 feet, then the rise is 8 feet or 96 inches in 24 feet of run or $96 \div 24 = 4$ feet per foot of run.
5. The pitch of a roof having a 7-inch rise per foot of run is $7/24 = 7/24$ pitch. As the rise is 7 feet per foot of run it is also 7 feet for 2 feet or 24-inch span. The pitch is the rise divided by the span = $7/24$.
6. A three-fourths pitch roof has an 18-inch rise per foot of run. A three-eighths pitch roof has a 9-inch rise per foot run. The three-fourths pitch roof, therefore, is the steeper.



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Blue Prints are interesting to every man in the building trades. And more! They are the key to every builder's success. For until you can read and understand blue prints you will probably have to be satisfied with only a scale wage. The man who can read blue prints can become foreman, superintendent, or have a business of his own. To help every man who really wants to make money and get ahead in building, Chicago Technical School for Builders offers absolutely *free* these Blue Print Plans and a 24-page book "How to Read Blue Prints."

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Plan Reading. Every man who has got very far ahead in any building trade can read blue prints. No man can expect to be a first rate foreman or superintendent until he knows what every line on a plan means and how to lay out and direct work from the architect's plans. By the Chicago Tech. Method you quickly learn to read any plan as easily as you read these words.

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Also special courses in Architectural Drafting for builders, taught by practical men. These explained in Special Catalog "D" sent on request.

What this book is

This book is written by an expert... a practical builder who knows the game from top to bottom. It tells how different materials are shown on blue prints, how "sections" and "elevations" are shown on plans, how to lay out a building from a plan, how to take off quantities... and all the other interesting and important facts regarding blue prints. The book is as easy to read as your newspaper... written in plain, everyday English that everyone can understand. "How to Read Blue Prints" will be mighty helpful to you. Aside from the real help it gives you it will show you how clear and plain and easy the Chicago Technical Builders Course is... how quickly you can learn in your spare time... at home... to become a building expert.

Learn at Home to make more money

For 20 years the Chicago Tech. School for Builders has been training men to advance and make more money in building. Hundreds of successful men, superintendents

and contractors, owe their success to their Chicago Tech. training. We train you by mail... in your spare time... at home.

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Dept. 136, Chicago Tech. Building, 116 E. 26th St., Chicago, Ill.

House Insulation and Its Relation to the Heating Problem

By H. B. GATES

PROBABLY the most notable recent development in residence construction is the increasing use of heavier and better insulation in the walls and roofs—a development of very immediate and vital interest to the heating engineer and contractor. Since wall and roof losses are an important factor in determining the amount of radiation, it is obvious that any material reduction of these losses must be reflected in the calculations and affect the size of the plant that will be required. Hence, the relation between these two subjects, heating and insulation, is a very close one and well worth the serious attention of all who design and install domestic heating systems.

Until within the past few years no serious effort, generally speaking, has been made to correct the heavy heat losses through house construction. Occasionally houses have been built, particularly in far northern climates, in which some really effective insulation has been used, but these were exceptions. Usually even the better class of houses have had no provision for reducing heat transmission other than the structural material used, or, at most, a layer of paper or "air spaces." The paper, of course, served no other purpose than as a windstop, being entirely too thin to have any real insulating value. Air spaces cannot be built with wood or masonry small and tight enough to be of any real worth as insulation. As a result the heat losses through such construction have been very high and a considerable part of the radiation figured for a house is required for the purpose of supplying the amount of heat necessary to offset this leakage.

Now that conditions are changing and houses are being built with really adequate insulation in exterior walls and roof, or top-floor ceiling, the heating estimator will almost certainly be under the necessity of altering his calculations accordingly. If less heat is lost, less need be supplied and less radiation will be required. The careful estimator



Applying Corkboard Insulation to the Under Side of the Roof Prevents an Appreciable Amount of Heat Loss and Makes Consequent Reduction of Heating Expense.

should therefore be very fully informed as to just what effect insulation does have when added to walls and roofs of the various types of construction. Judging by the rapidity with which the principle of insulation is being accepted by architects, contractors and home builders, heating contractors are going to be called upon to base their estimates on heat loss factors greatly different from those heretofore generally accepted.

For example, let us take a solid brick wall, 8 inches thick, with furring strips, lath and plaster. The transmission per square foot, per degree difference in temperature, per hour, is .21 B.t.u.'s. An 8-inch brick wall without furring strips and lath, insulated with 1½ inches of corkboard and plastered transmits .10 B.t.u.'s, a reduction of a little more than 52 per cent. Take a wall 7/16-inch clapboards, ¾-inch sheathing, studding, lath and plaster. It transmits, on the same basis, .23 B.t.u.'s. Omitting the lath and adding 1½ inches of corkboard, the heat transmission is reduced to .11 B.t.u.'s, or about 52 per cent. The transmission through a roof of shingles, sheathing or T. & B. boards, and rafters, is .35 B.t.u.'s; with the addition of 1½ inches of corkboard plastered, .13 B.t.u.'s, or 63 per cent less.

Obviously such reductions as these in the amount of heat leakage must be reflected in the results of any heating estimate that is based on calculation and not on mere rule-of-thumb methods of arriving at capacities required.

There are two aspects of house insulation of immediate concern to the heating contractor.

1. The greatly increased heat retention of the insulated construction enables the plant to operate much more efficiently. It not only uses less fuel, but it heats the house much more uniformly. There is no complaint about rooms that are "hard to

(Continued to page 214.)



Another Insulating Coat of Corkboard, on Tile Wall and Second Floor Ceiling of a Residence, Which Saves Coal.

How to avoid *building mistakes*

Indifference in the selection of building materials can mean but one thing — *bitter disappointment in the years to follow.*

How often have you seen cracked walls, sprung woodwork, leaking roofs — *every one of them preventable* — and very costly in the end.

When you build or remodel, follow the example of the man who builds his *second* home. Know your materials before you buy!

Investigate Beaver Products for walls, for roofs. Prove to yourself that they will build more durable and beautiful walls and better sealed, more lastingly attractive roofs. *You* be the judge of their true economy. They invite your decision. Test and compare!

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Thorold, Ontario, Canada

London, England

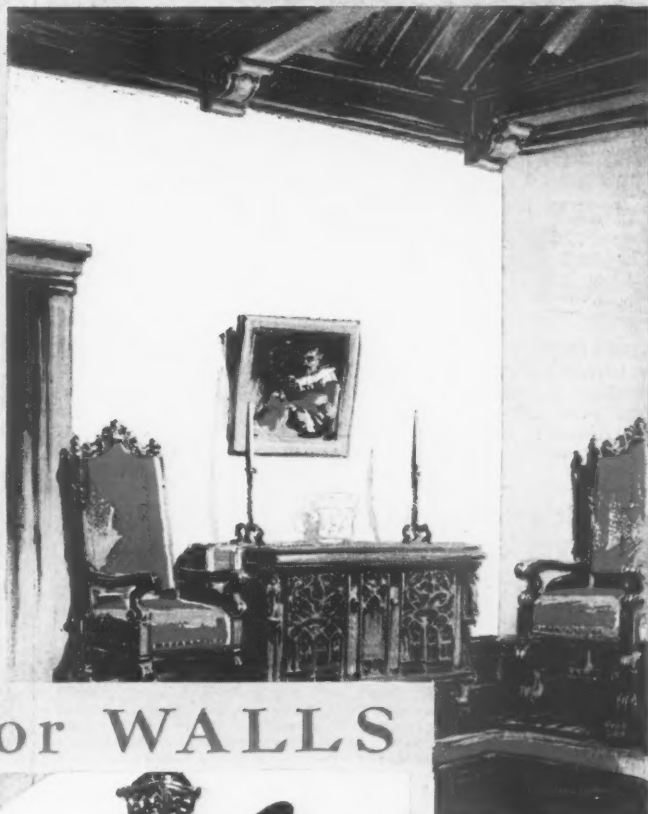
"Consult the BEAVER PRODUCTS DEALER in Your Town"

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BEAVER VULCANITE HEXAGON SLABS SEAL THE ROOF
TIGHTER THAN ORDINARY SHINGLES

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BEAVER AMERICAN PLASTER IS USED
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BEAVER BESTWALL
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BEAUTIFUL WALLS



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BUILT-TO-ORDER ROOFS
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ROOF PAINTS AND CEMENTS

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Typical of Beaver Quality is BEAVER BESTWALL

It is the superior plaster wall board. Compare its distinctive cream colored surface for decoration with that of any other plaster wall board. It takes paint more artistically and more economically. It allows of easy removal of wall

paper when redecoration is necessary. Test it for strength. Test it with fire, with water. Why buy ordinary plaster wall board when you can prove that in every way Bestwall will serve you better? It costs no more. Write for sample and literature.

Building Draftsmen WANTED



\$9,000 in Four Months
"I have made \$9,000 in four months on nine buildings."
Wm. J. Petrasek, Chicago

\$210 Per Month
"I am making \$210 per month as Architectural Draftsman. Thanks to Chicago Tech."
Geo. E. Shaffer, Hailey, Tenn.

\$6,000,000,000 in Building—Train at Home for Big Money in This Fertile Field

Six Billion Dollars in one year! Think of it! Today Building is probably

America's greatest and most profitable industry. Here is a field whose future is insured by the normal growth in population and the industrial expansion of our country. There is a big building shortage now and many competent observers predict that our largest cities will be practically rebuilt in the next ten years due to ever higher standards of living. Six Billion Dollars spent each year in building means fortunes for thousands who have the vision to grasp the opportunity open now to get in on the ground floor.

In Chicago Earn While You Learn



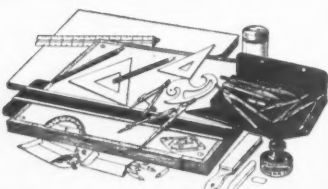
Chicago Tech. Building
Short Day or Evening Courses offered in Building Construction and Drafting in our Chicago School. Part time positions defray living expenses. 72-page "Blue Book" tells all. Ask for it if interested in coming to Chicago to attend the College.

Get Into Big Pay This Easy Way

Architectural or Building Draftsmen are needed everywhere. Get out of the low or moderate pay job. Step into a *real* job. You can do it with training in Architectural Drafting. Salaries are big because of the tremendous demand and the shortage of trained Building Draftsmen. Work is steady and you have a splendid chance to go into business for yourself. This is the opportunity offered to you by this old established school of Architecture and Building Construction. Step out of the \$40 a week class. Learn how to earn \$50 to \$100 a week—and later \$5,000 to \$10,000 a year as chief or superintendent.

Train at Home— Earn as You Learn

No need to quit your present job. Keep your present income and prepare for a bigger one. Our simple "Practice Plan Method" will qualify you quickly in your spare time. Into it has gone over 25 years of experience and the best knowledge of our large staff of architects and builders. It is simple, complete, successful. Practical, successful builders guide you. Lessons in plain English. A common schooling is all you need. Get the facts now—today.



This \$25.00 Drawing Outfit Sent without extra cost. Good for a lifetime. Mail the coupon and learn how to secure this valuable outfit.

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Just to show you how easy it is to learn Architectural Drafting by our method, we will send you a Trial Lesson and Blue Prints Free. Test yourself and see how you like the work. Send no money—just the coupon. Get this Free Lesson now with our Big Book of Opportunity also free. Make your first step today—it costs you nothing.

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☐ Machine Drafting

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☐ Structural Drafting

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



Celotex Increases Capital and Plant

STOCKHOLDERS of the Celotex Company at a recent meeting absorbed a two million dollar issue that increased the capital stock of that corporation from 30,000 shares of \$100.00 par value preferred and 45,000 shares of no par value common to 60,000 shares of preferred and 60,000 shares of common, according to announcement by B. G. Dahlberg, president of the Celotex Company.

Of this additional capital one and a half million dollars will be immediately directed to expanding the Marrero, La., mill here by the construction of two additional machine units to be ready by the fall of 1926.

"These additional manufacturing facilities for celotex at the Marrero mill do not take into consideration the project for a mill at Clewiston, Fla., that should be in operation by the fall of 1927.



Value of Insulation

(Continued from page 212.)

heat"; the north side is just as warm as the south side, upstairs as comfortable as down. The closed portion of the house stays warmer overnight and cold bedrooms warm up quickly when the heat is turned on in the morning. The natural reaction of the occupant to such results is the conviction that he has a mighty good plant, and the heating contractor gets the credit for a first-class job.

2. The insulated house is so much more easily heated that the contractor can and does figure a smaller plant than he would otherwise. At first glance this might seem to be a disadvantage in that the unit of sale would be smaller. But such a view is shortsighted and entirely neglects the prestige and good will that accrue to the contractor who is thus enabled to pass on to his client a considerable saving in cost. Every business is and must be founded upon the good will of its customers. The man who can give a better service and at the same time save his client money soon finds himself outside the zone of cut-throat competition. Business comes to him easily through the endorsement of satisfied customers.

While it is true that the heating contractor or engineer seldom, if ever, has anything to do directly with specifying the construction, the two are so inter-related that the man who pretends to keep himself and his business up to date cannot afford to pass this development by as of no concern to him. It does concern him very much indeed and affects his business to as great an extent as would some important improvement in heating apparatus.

It is certainly to the advantage of the heating contractor to install his equipment under conditions that are most favorable to its efficient operation—low first cost, low fuel cost, and dependable, uniform heating. Hence, the entire heating industry is vitally interested in the development of house insulation and will be greatly benefited by informing itself fully on the details of materials used and results accomplished.



Walls of Wood

—for modest homes today
as well as costly mansions

WHAT rich refinement—what quiet comfort and lasting beauty in Walls of Wood!

And now such walls may be had in even the simpler homes.

From a costly luxury limited to the rich they have come to be an actual economy—due to panel standardization by Algoma.

In first cost, Algoma Panels have



been brought within the reach of average builder's budget.

In installation, they cost no more than simple plastering.

In upkeep, they have an added economy—they eliminate the costs of redecorating.

There is a valuable book, "Suggestions for Walls of Wood," which we shall be glad to send you. It contains page after page of practical information and helpful detail drawings. It shows you how best to use Walls of Wood in any building you plan. Write for it.

ALGOMA PANEL COMPANY, Algoma, Wis.
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The Better PLYWOOD

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"SMOOTH AS A
KITTEN'S EAR!"

The satin-smooth surface of Keystone Red Cedar Siding is one of the evidences of the special care used in making this high-grade material.

Builders find it easy to work and handle, and because it does not shrink, swell, warp or buckle and is free from pitch, you can build from it houses that will enhance your reputation.

And with this charm, there is also a fine satisfaction in using such splendid material as this, made from the grand old cedars of Western British Columbia.

Write today for valuable information about this super-quality lumber.

HAMMOND CEDAR CO., Ltd.
New Westminster, B. C., Canada

Western
Red Cedar

"The Wood That Nature Armed Against Decay"

is recognized as the most durable lumber that can be used for outside work, in any place subject to exposure to dampness or storm. It is practically immune from rot, because of a natural oil which it contains.

KEYSTONE
RED CEDAR SIDING

Pick-Barth Merger

THE merger of the two largest concerns in America engaged in the complete furnishing and equipping of hotels, restaurants, clubs and institutions is announced by the managements of Albert Pick & Co., Chicago, and L. Barth & Son, Inc., New York. These two big concerns, one operating in the east and the other in the balance of the United States have for years been growing rapidly along exactly the same lines, each having developed a very small business to giant proportions.



J. F. Hemenway Retires

SMITH & HEMENWAY CO., INC., Irvington, N. J., announce the retirement of Mr. J. F. Hemenway. His entire interests have been purchased by Mr. Landon P. Smith, president. Mr. Smith will continue in the active management of the business as heretofore.

Several new developments are in the course of preparation such as re-designing of buildings and improving machinery to better facilitate the manufacture.



Burner Company Expands

DISTRIBUTION of the Burnoil automatic home heating-system throughout the New England states has been established as a consequence of increased facilities at the Long Island, N. Y., plant of the Burnoil Burner Corporation. This company has formerly limited its business to New York City and the suburban districts of New York and New Jersey. The expansion of territory comes as a result of increasing demand.

The manufacturing and merchandising expansion comes simultaneously with the addition to the company's personnel of Oscar F. Ostby, formerly general sales manager of the Prest-O-Lite Company. Mr. Ostby has been made vice-president in charge of sales and advertising of the Burnoil company, whose sales offices are located at 56 W. Forty-fifth St., New York City.



James L. Camp Dies

JAMES L. CAMP, of Franklin, Virginia, president of the Camp Manufacturing Company, passed away on Friday, December 4, 1925. For over forty years this pioneer manufacturer has been prominently identified with the lumber business.



Tile Company Opens Offices

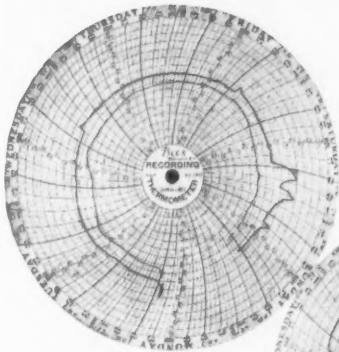
BERT J. GRAHAM, president Interlocking Tile Corporation, Cleveland, Ohio, has just returned from an extended trip to the Pacific Coast where he has opened offices at 323 Douglas Building, Los Angeles, Calif., Geo. H. Rogers, district sales manager, and at 603 Sharon Building, San Francisco, Calif., J. S. DeSilva, district sales manager.



Association Moves to New York

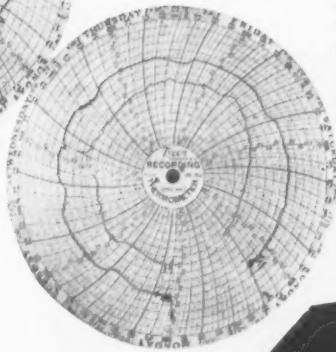
THE National Association of Lighting Equipment Dealers has moved its headquarters to 522 Fifth Ave., New York City, in the same building which houses the offices of the Society for Electrical Development. This does not in any way change the condition of complete independence of the two organizations, but the move has been made in order that they may co-operate more effectively toward common purposes.

Insulation cost this owner Nothing



The outer line on this chart shows evenness of temperature on the second floor; the inner line that of temperature above the ceiling.

The outer line shows steady 70° temperature in the living rooms during weather which ranged from 15° to 40° as indicated by the inner line.



The difference between the cost of boiler and radiation as actually installed, and what would have been necessary without Insulex protection, more than equaled the entire expense of insulation, including material and labor. These figures are authenticated by heating engineers, and will be supplied to any contractor or builder on request.

In addition to this initial saving, further economy will be effected in fuel bills for years to come. This home will be warm in winter and cool in summer—always the result of Insulex, the gypsum insulation.

Residence of H. S. Ashenhurst, Chicago
Insulexed throughout



This modern residence, of ordinary frame construction, was completely Insulexed—floors, walls, ceiling, and roof. Poured in place on the job, between studding, joists and rafters, sealing all cracks and crevices. Gypsolite wallboard, with rough-textured finish, made possible graceful arched openings, and beautiful interiors, with greater fire protection.

Pours in place. Easy to use. Makes frame construction fireproof.

INSULEX

UNIVERSAL GYPSUM
GYPSUM INSULATION

PATENTED JUNE 12, 1917 AND NOV. 25, 1924

Stops heat leakage in winter. Keeps heat out in summer.

CELLULAR GYPSUM insulation that pours-in-place, revolutionizes home building methods. Five years' use in thousands of homes establishes a new standard of comfort and safety. Insulex fills every crevice, yet adds little weight. It is fireproof; vermin and ratproof; heat, cold, and sound resisting. Its strength increases with age. Should it become damp it dries out stronger than before. There is no deterioration.

Costs less to install than the fuel it conserves. Saves its initial cost in smaller boiler and less radiation required.



Manual of Insulex data, free to dealers. Explains what it is. How to use it. What it will do. Write for this valuable book.

Easily Applied

Delivered in 80-lb. sacks in powder form. Mixed with water, it expands from 3 to 7 times its bulk, forming millions of tiny dead air cells. It is then poured between walls, under the roof, or under the floors, and sets in thirty minutes. Can also be fabricated into slabs or blocks, and used for wall or partition construction. Insulex makes possible a modern, fireproof, and comfortable home at less cost. Write us for literature outlining in detail exact methods of using, also for sample of Insulex. Our engineering experts will help you without obligation.

UNIVERSAL GYPSUM COMPANY

113 W. Washington St., Chicago. District Offices: New York, Fort Dodge, Ia., Kansas City, Atlanta, Ga.

To Exhibit at Road Show

THE Fuller & Johnson Mfg. Co., engine specialists, Madison, Wis., are now marketing through their own sales organization, the power and light units which they have been manufacturing for a number of years.

In addition to these electric light plants, the Fuller & Johnson Mfg. Co. will exhibit their multi-cylinder and single-cylinder engines at the road show.



Death of Virgil G. Marani

WORD has been received from the Gypsum Industries, 844 Rush Street, Chicago, Ill., of the death of their chief engineer, Virgil George Marani, on Monday, November 2, 1925.



Appoint District Sales Manager

THE Bridgeport Brass Company announces the appointment of H. A. Watkins as metropolitan district sales manager with offices in the Pershing Square Building, New York City. Mr. Watkins has had a wide experience in general industrial and utility development work, and was formerly superintendent of docks in New York and a major of engineers during the war.



Appoint New York Agent

THE Ideal Concrete Machinery Co., Cincinnati, announces the appointment of the Ginsberg-Penn Company as agent in New York City. Stock will always be carried and the Ginsberg-Penn Company will take care of sales and service complete for the Ideal Concrete Machinery Company's customers. Frank Ginsberg, Hamilton Penn

and E. G. Robinson are in charge of the main office at 18 E. 41st St. The service station and warehouse are located at 220 E. 134th St.



Death of Thomas A. McCann

ON the twenty-first of October occurred the untimely death of Thomas A. McCann, at the age of 39 years, at the height of a successful career, and at the threshold of an even larger usefulness to the lumber industry in which he was a commanding figure.



Open Branch Office

THE Harwood Beebe Company, of Spartanburg, S. C., has announced the opening of a branch office at Ocala, Fla., for the general practice of architecture and engineering and will be glad to receive samples and catalogues from manufacturers.

Haggart Elected V. P. of Republic

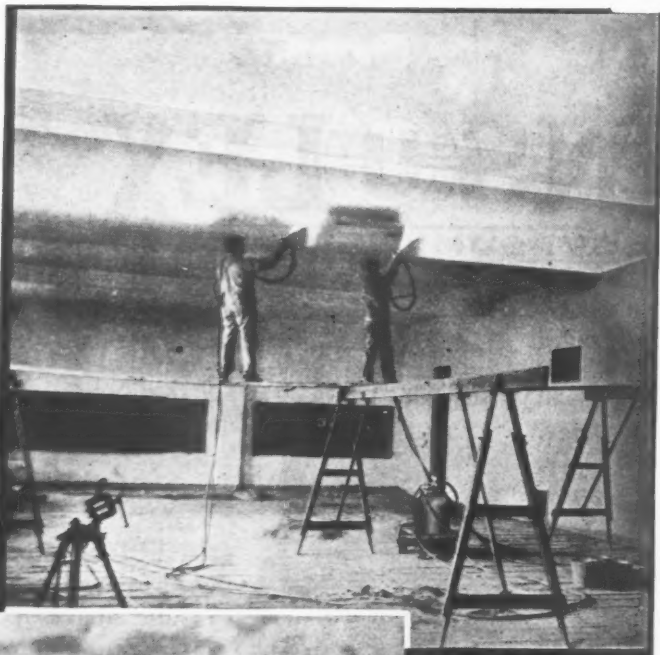
J. C. HAGGART, JR., has been elected vice-president of the Republic Motor Truck Co., Inc., Alma, Mich., according to an official announcement by O. W. Hayes, president. Mr. Haggart has been associated with the Republic Truck Company for the past nine years, both as chief engineer and assistant to the president.



Association Changes Name

THE Prepared Roofing Association will close its Chicago office December 31, 1925, and mail thereafter should be addressed to Asphalt Shingle & Roofing Association, 350 Madison Ave., New York, N. Y. The new name of the association is effective January 1, 1926.

Winter Spray-painting



The wall and ceiling surface of this high school building was painted the DeVilbiss way.

It was three-coat work, with a coverage of over 600 sq. ft. to the gallon of paint.

Spray-painting on this job made it possible for the contractor to do a highly superior quality of work and to effect a saving in excess of 70% on labor alone.

Increased painting profits for every month in the year

The many available "cold weather" jobs can be painted the DeVilbiss way to the same advantage as are the jobs of other seasons.

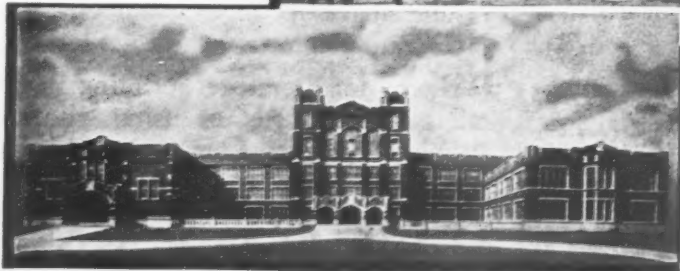
Year 'round operation of the DeVilbiss Spray-painting System insures a FULL year of increased painting profits.

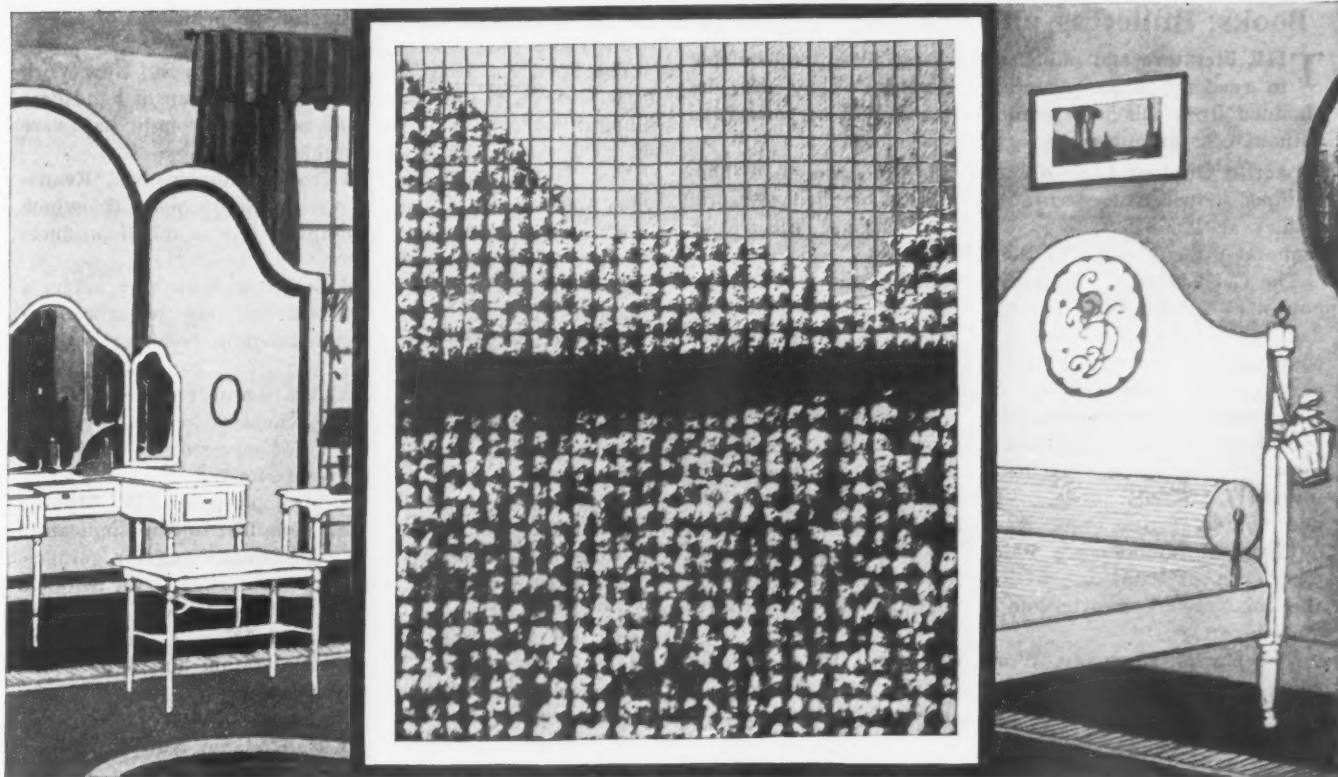
Painting this improved, modern DeVilbiss way you will do more thorough, more uniform and cleaner work. You will do 3 to 5 times faster work. So that no matter what season of the year it is, you can sell a greater amount of painting with the definite promise of doing it (1) more promptly, (2) with less confusion and muss, (3) in an improved, better way, and (4) at the right cost.

We'll gladly mail you further facts on the DeVilbiss System and its year 'round profitable operation. Address—

THE DEVILBISS MFG. CO.
238 Phillips Ave. TOLEDO, OHIO

DeVilbiss
Spray-painting System





CLINTON WIRE LATH

EVERY indication points to a record building year in 1926. Every builder and architect would like to make his part in this new construction a lasting monument to himself. This cannot be, because the demand for cheap construction must be met; but the influence of all the leaders in the building profession will be on the side of solid construction that will withstand the years.

Into much of this durable construc-

tion Clinton Wire Lath will go. This is the highest grade of lathing material and the price warrants its use in all high grade buildings. A drawn steel wire is stronger than sheet metal, and wire mesh gives a more perfect key than can be obtained with any other type of lath.

Write for a handbook of useful information on permanent plastering, with specifications on various grades of Clinton Wire Lath.

WICKWIRE SPENCER STEEL COMPANY

General Offices:

41 East Forty-second Street, New York

Western Sales Office:

208 South La Salle Street, Chicago

Worcester

Buffalo

Cleveland

Detroit

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Los Angeles

Seattle

WICKWIRE SPENCER PRODUCTS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the American Builder. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Art in Outdoor Lighting" is a beautiful booklet of illustrations showing the decorative lighting supplied to Coral Gables at Miami, Fla., by the Westinghouse Electric & Manufacturing Co., South Bend, Ind.

The Cal Chemical Company, Inc., Hagerstown, Md., has published a report of tests made by Professor John R. Lapham, of George Washington University, to determine the comparative bonding strength of portland cement mortar and portland cement mortar containing 5 per cent of Cal, when used for brick work.

Richards & Geier, 277 Broadway, New York City, patent attorneys, publish two booklets of valuable information for inventors under the titles, "Patents—Law and Practice," and "Trade-Marks, Trade Names, Unfair Competition."

"Tropical Maintenance Paints" is the latest catalog of The Tropical Paint & Oil Co., Cleveland, Ohio; it covers the company's complete line of coatings for all purposes and climates.

The Norton Company, Worcester, Mass., has issued, for filing under the A. I. A. classification, several sheets of designs for ceramic mosaic floor tile which it supplies.

Better Homes in America 1653 Pennsylvania Ave., Washington, D. C., has published its Guidebook for the Better Homes Campaigns for 1926, price 15 cents; and also a pamphlet on School Cottages for Training in Homemaking, price 10 cents.

"Selling Construction Service," by Charles F. Dingman, published by the McGraw-Hill Book Company, Inc., 370 Seventh Ave., New York City, is a pocket sized book in-

tended to present to the contractor the principles of advertising and selling his service. Price \$2.50.

The Ford Hardware Co., Inc., 25 W. 45th St., New York City, present, in the form of a folder, a group of handsome illustrations cataloging the line of hand wrought hardware which is a specialty of this company.

The International Steel & Iron Company, Inc., Evansville, Ind., has published a booklet—Supplement 22—which illustrates and catalogs its complete line of metal products for modern store fronts.

Co-Wa-Co, Inc., 116 Broad St., New York City, offers a pamphlet describing its integral concrete waterproofing compound and method of waterproofing concrete without affecting its tensile strength.

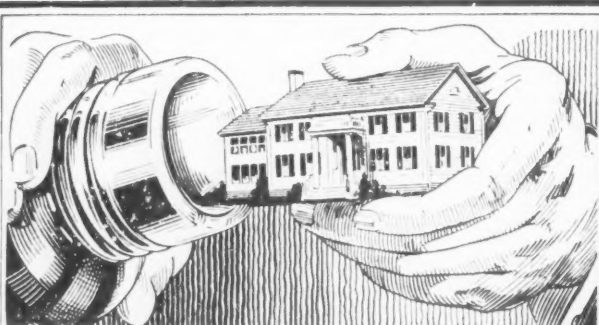
"Tuff Stuff," the monthly publication of The Lehon Company, Oakley Ave., Chicago, Ill., contains in the November issue a number of illustrations of advertising floats and shows displays which have proved effective.

The United States Gypsum Company, 205 W. Monroe St., Chicago, Ill., offers a small pamphlet on the application of sheetrock wallboard as an insulating lining for garages.

The Plate Glass Manufacturers of America, First National Bank Bldg., Pittsburgh, Pa., have published a booklet under the title "The Low Cost of Dignity and Beauty," which is intended to show by illustration and figures that the small additional cost of plate glass for homes is a wise investment.

The Servel Corporation, 51 E. 42nd St., New York City, has issued a most attractive booklet covering the problem of refrigeration and cataloging its electric refrigerator equipment.

The Bridgeport Brass Company, Bridgeport, Conn., in commemoration of its sixtieth anniversary has reprinted and distributed, in pamphlet form, a historical sketch of the company from its beginning in 1865 up to the present time.



Put your whole House in a Thermos Bottle

Thermos-bottles keep things hot because the heat cannot escape, or cold because the heat can't get in. They insulate the heat.

CABOT'S Heat ~ "QUILT"

insulates your whole house. Prevents heat-waste and saves coal. It is not a mere felt or paper, but a thick, flexible cushion of air-spaces. One layer of Quilt is as warm as 28 to 40 layers of cheap building paper. It will save about one-third of your coal bill every year—and make your house cooler in Summer.

Send for a sample of Quilt. Free. It's a "comforter" that keeps the whole family warm.

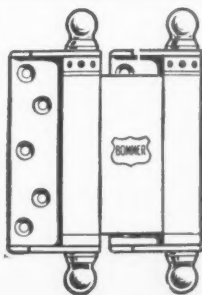
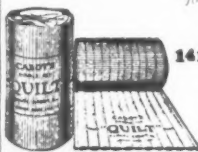
SAMUEL CABOT, INC.
Mfg. Chemists

141 Milk Street Boston, Mass.

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5000 Bloomingdale Avenue
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New York
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Cabot's Creosote Stains, Stained Shingles,
Stucco Stains, Old Virginia White, Double-
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Buy the Best HARDWARE For Hard-wear

For more than 48 years Bommer Spring Hinges have maintained their leadership and proven their superiority over all others.

They have kept pace with the times, because they have been kept up with the times whenever improvement was possible.

BOMMER SPRING HINGES ARE THE BEST

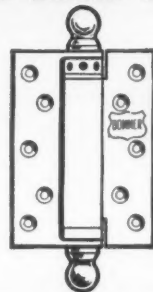
They are in universal demand—easiest to apply and the most satisfactory spring hinges made.

Your Dealer handles them.

Send for New Catalog 47. It is a big help in ordering.

Bommer Spring Hinge Company

MANUFACTURERS
BROOKLYN, N. Y.



They'll stamp your houses *modern*



Fenestra Casement Windows

FENESTRA Basement and Garage Windows, like Fenestra Casements, are made of steel, are weather-tight, always work easily, never warp or stick. To use them stamps a house *modern*. Write for descriptive literature.

NO realtor or builder ever has too many talking points for the properties he wants to sell. And while many features can only be described—Fenestra Casement Windows sell themselves on *visible* points of beauty and utility.

But even with obvious advantages Fenestra *costs no more than ordinary windows*. For any type of home or apartment you can use Fenestra Casements profitably. Have your dealer send them with your other building material.

DETROIT STEEL PRODUCTS COMPANY
2260 East Grand Boulevard, Detroit, Michigan

Fenestra
for homes, large and small
shops and small factories
garages and service stations
stores and other buildings

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to readers of the *American Builder*. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

"Attractive Fireplaces and How to Build Them" is a booklet of The H. W. Covert Company, 137 E. 46th St., New York City, which contains useful information on the proper construction of fireplaces, and catalogs the company's fireplace hardware.

The Gas Products Association, 140 S. Dearborn Street, Chicago, Ill., has issued a bulletin covering fully the new standard hose connection for welding and cutting torches and regulators.

The O. C. White Company, 15-21 Hermon Street, Worcester, Mass., presents its new catalog No. 26 which contains many important changes and additions to its lines of light fixtures made since the last catalog was issued.

Myron S. Teller, 280 Wall Street, Kingstown, N. Y., offers a most interesting brochure illustrating the hand wrought Colonial hardware which he manufactures and accompanied by a price list of these authentic reproductions.

"Leadclad" is an interesting new booklet from the Wheeling Metal & Manufacturing Company, Wheeling, Pa., which, by means of pictures, tells the story of its roofing products.

"Steel" is a brochure compiled by the J. E. Moss Iron Works, Wheeling, W. Va., to acquaint the building public with those products of this company which enter into modern construction and fireproofing.

The Oak Flooring Bureau, 828 Hearst Bldg., Chicago, Ill., offers the following pamphlets: "The Story of Oak Floors," "How and Where to Use Oak Floors," "For Hotels Lay Oak Floors," "For School Buildings Lay Oak Floors."

The Central Ironite Waterproofing Company, 1425 Conway Building, Chicago, Ill., has issued a circular furnishing information on how to keep water out of basements by waterproofing floors and walls.

The Central Iron & Steel Co., Harrisburg, Pa., publishes a small booklet illustrating the uses of its floor plates or treads for interior or exterior surfaces which are likely to become slippery or worn.

"Cold Weather Mortar" is the title of a booklet published by the National Lime Association, 918 G St. N. W., Washington, D. C., which contains a report of recent tests made by the Engineering Society of Wisconsin.

The Jackson Manufacturing Co., Harrisburg, Pa., has issued a new catalog of its line of barrows, concrete carts, drag scrapers and mortar pans.

Wm. Menzel & Son, 68 Broad St., New York City, offer a small booklet descriptive of the quality and uses of Lignisalvor, a wood preserver and stain, for which they are distributors in this country.

The Chain Belt Company, Milwaukee, Wis., has recently published a new catalog featuring some of its concrete mixers, particularly the popular one bag type.

"Steel Mills Products" is the title of a booklet published by the National Enameling & Stamping Co., Granite City, Ill., which is a catalog of its products and also contains tables of information for steel construction, in handy reference form.

The Chicago Spring Hinge Company, 1500-1502 Carroll Ave., Chicago, Ill., has issued a new catalog, No. 42, listing its products as recommended by the U. S. Bureau of Standards in its Simplified Practice Recommendation No. 18.

"Wrought Iron of Distinction" is the catalog of the Florentine Craftsmen, 45 E. Twenty-second Street, New York City, which completely covers their line of hand wrought hardware.



BEGIN THE NEW YEAR in a new and profitable business of your own.

Winter has set in—you can install and prove conclusively the saving effected by installing them.

DOUBLE PAY FOR YOU

Send us the coupon and we will send you samples and full particulars.

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ALLMETAL WEATHERSTRIP CO.,
231 W. Illinois St., Chicago, Ill.
Gentlemen: Without obligation please send me samples and literature.

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1827 Prairie Avenue, Chicago

Frantz Quality
Proves Its Sterling Worth



Distinguish the
hardware by
the label

Don't Let Winter Snows Block Garage Doors

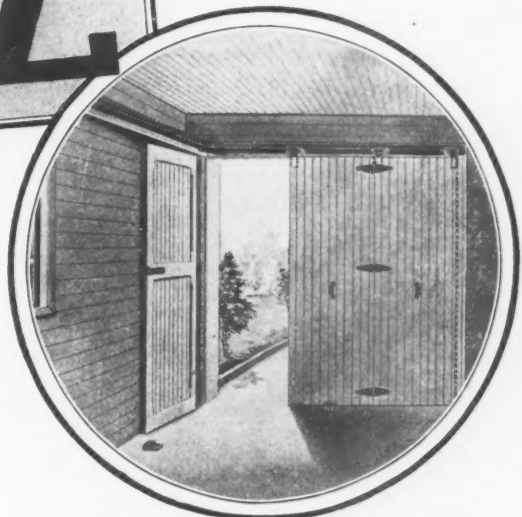
Now is the time when **FRANTZ 15-Y** Garage Sets are in great demand.

February snows can't block garage doors hung on Frantz 15-Y Hangers. Frozen ground can't make them hard to open. March winds can't blow them off their hinges. With Frantz 15-Y Hangers a gentle push slides the doors easily and quickly 'round the corner, out of the way. There is no sagging; no exposure to the elements.

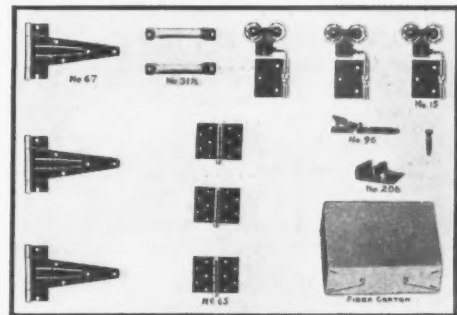
This is the time to install these popular sets. Ask our local dealer for prices.

*Frantz Quality Hardware for Houses,
Garages and Barns is sold only by
our authorized dealer in every city.*

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Sterling, Illinois



Garage Equipped With Frantz 15-Y Set
Note the separate passage door. Rolling doors need be moved only when car is taken in or out. Doors fit snugly to jamb, making a weather-proof job. Doors work trouble-free for years and years.



Complete Frantz 15-Y Set
One three-door set in a fibre carton, consisting of: 3 only No. 15 "Runwel" Hangers, with Bolts; 3 only 8-in. No. 67 Special Garage Hinges, with Screws; 3 only No. 63 Flat Back Butt Hinges, with Screws; 2 only No. 206 Floor Guides, with Screws; 2 only No. 31 1/2 Door Pulls, with Screws; 1 only No. 96 Extra Heavy Hinge Hasp, with Screws; all necessary Lags, End Stops for Track and Socket Wrench. Weight, 19 1/4 lbs.

